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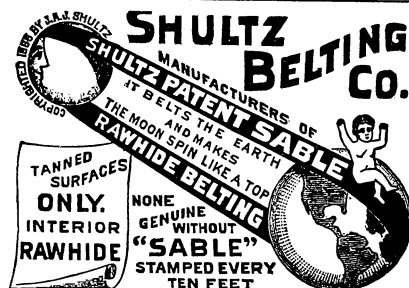
A Review of the Hardware, Iron and Metal Trades.

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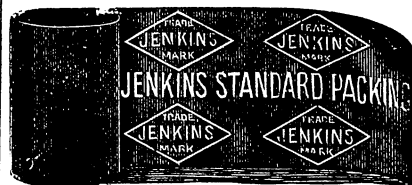
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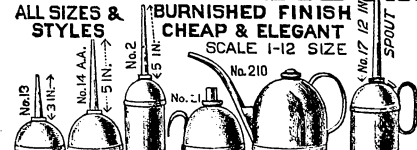
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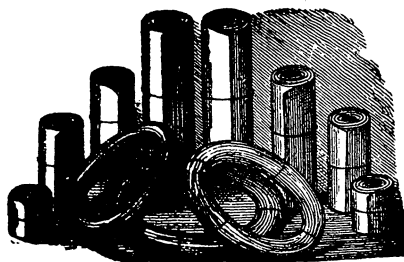
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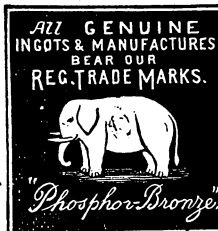
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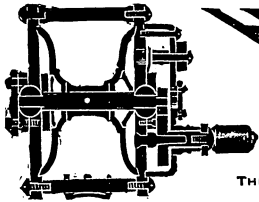
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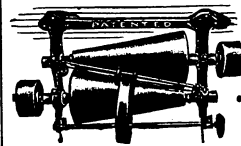
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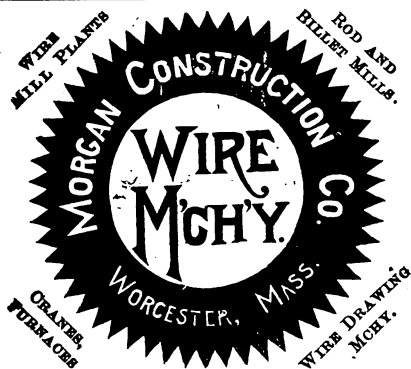
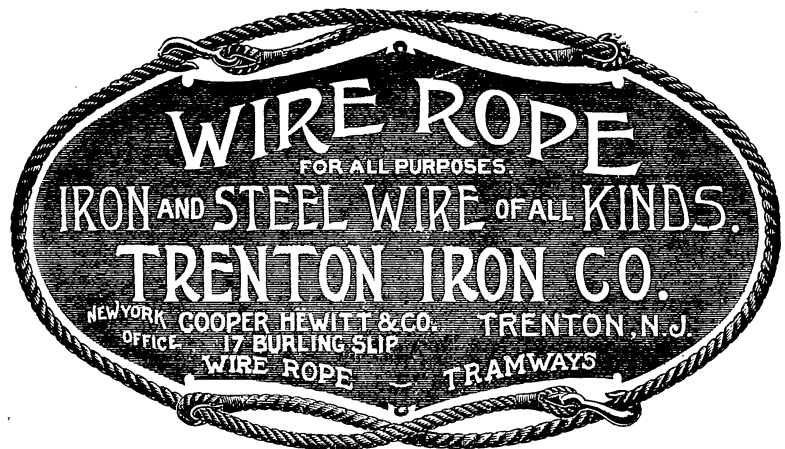
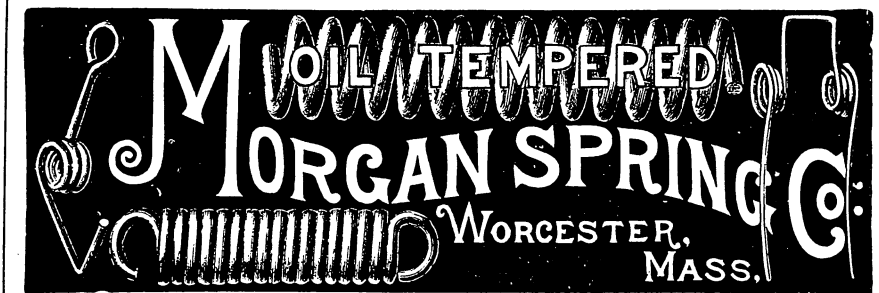
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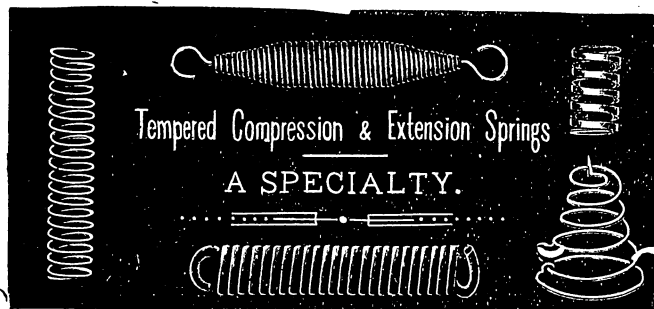
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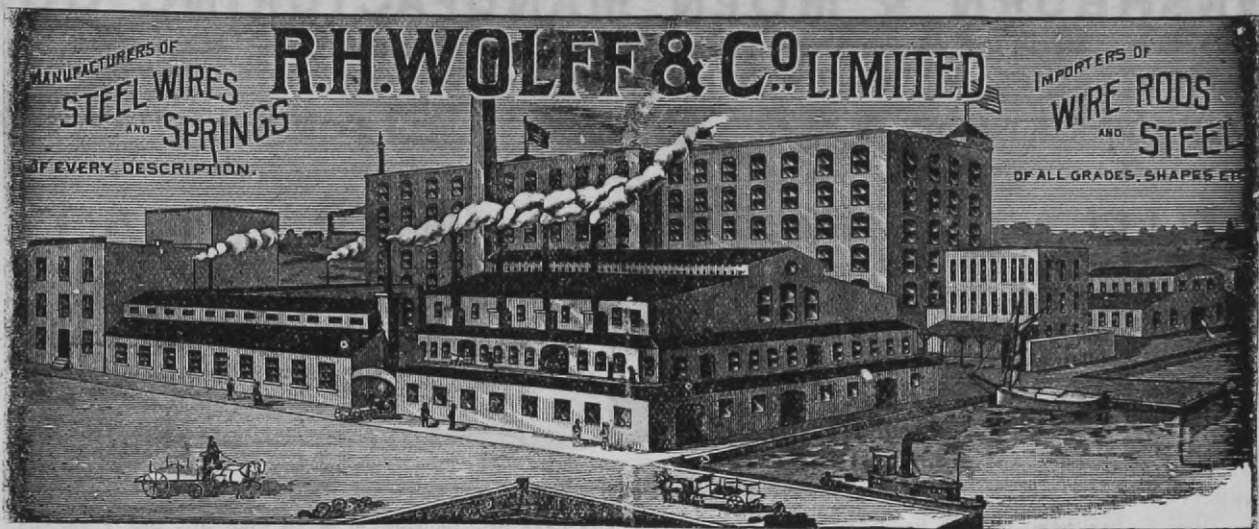
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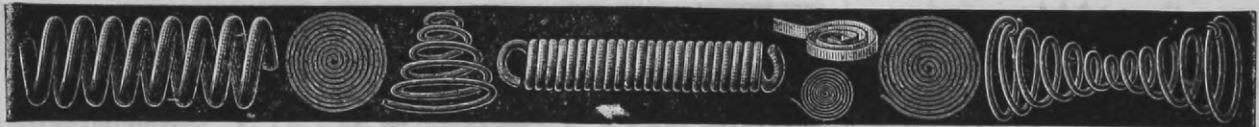
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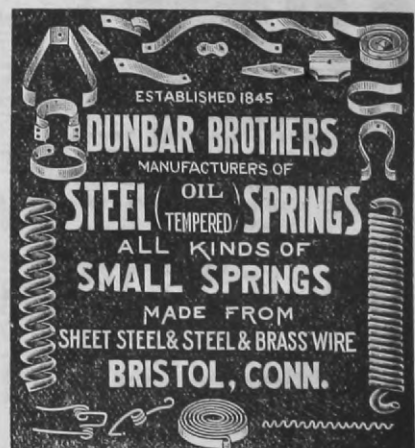
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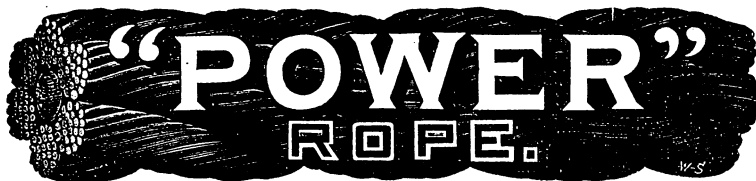
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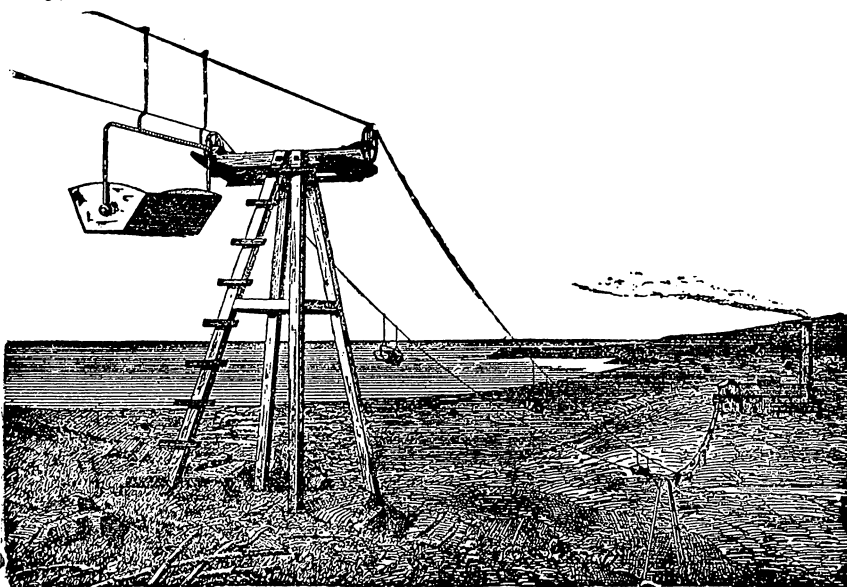
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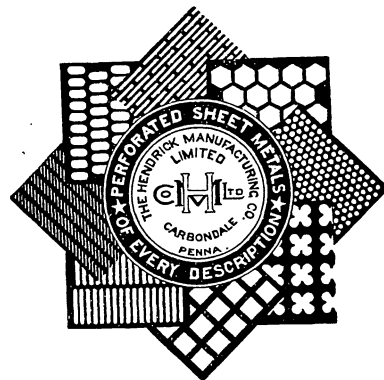
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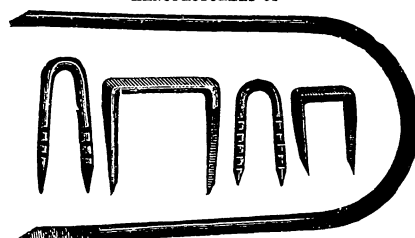
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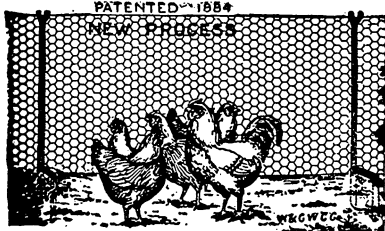
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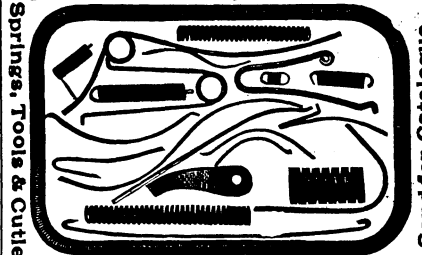
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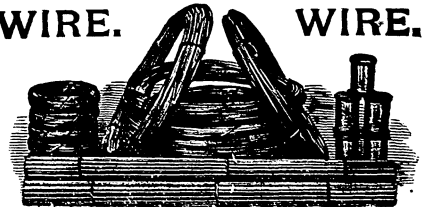
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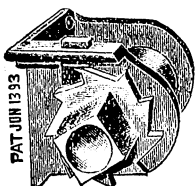
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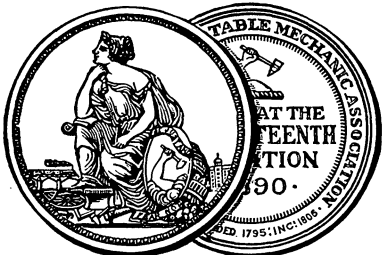
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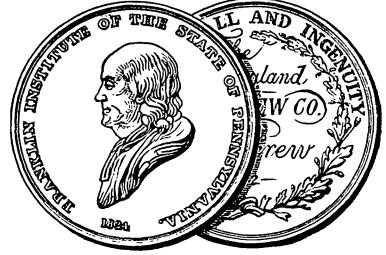
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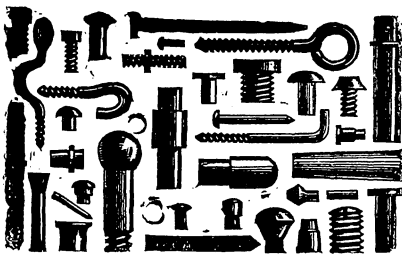
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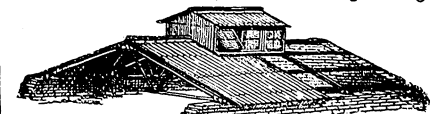
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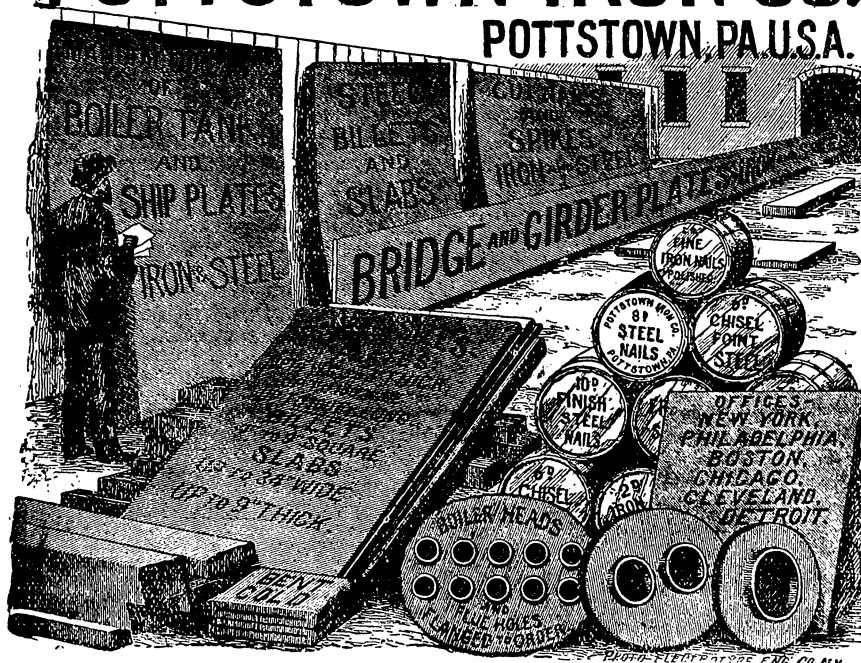
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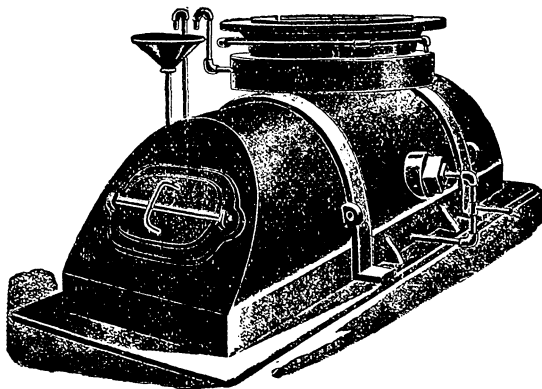
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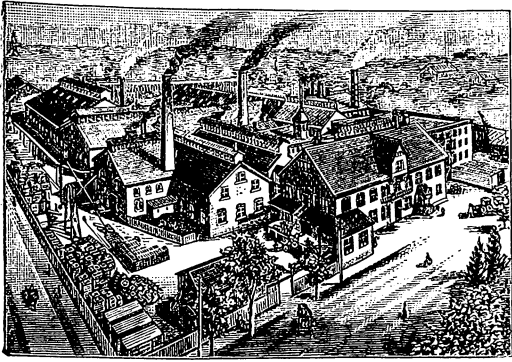
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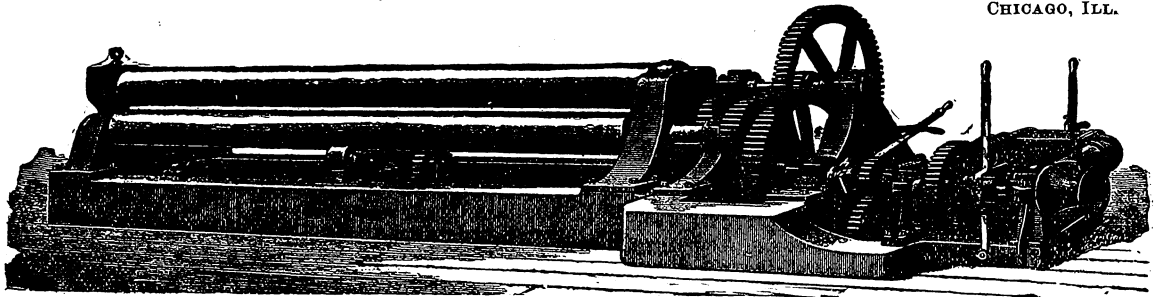
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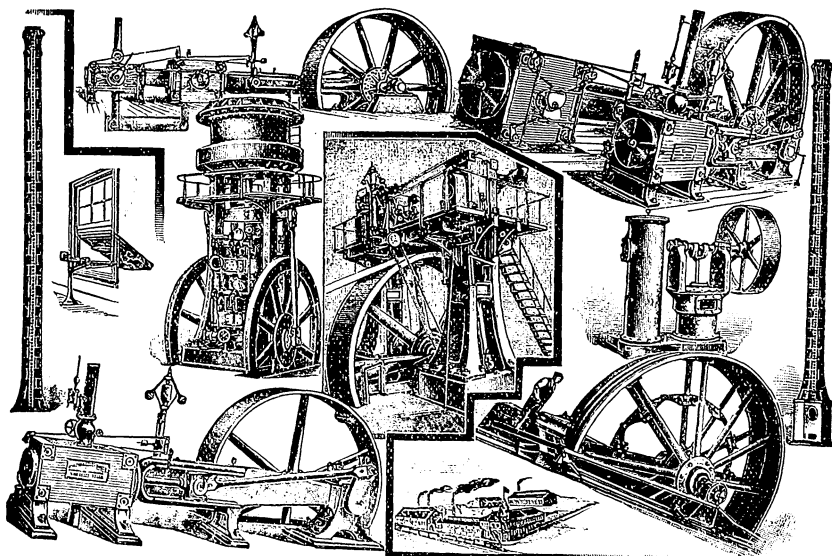
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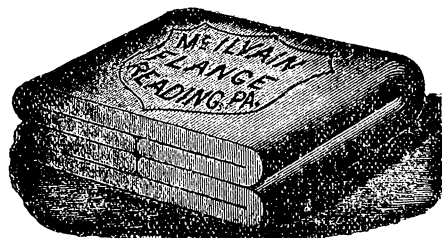
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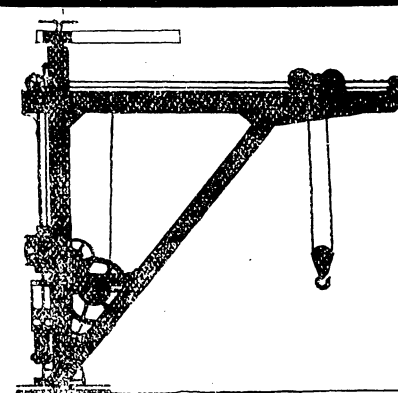
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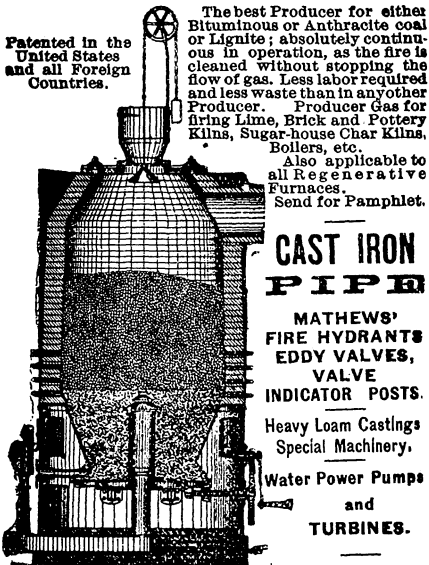
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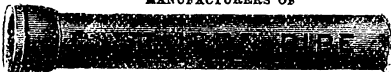
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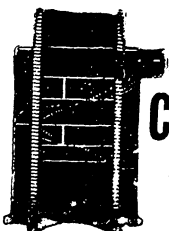
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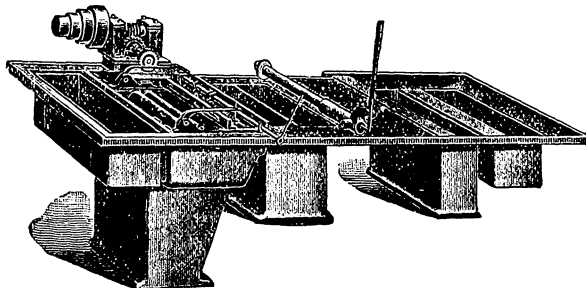
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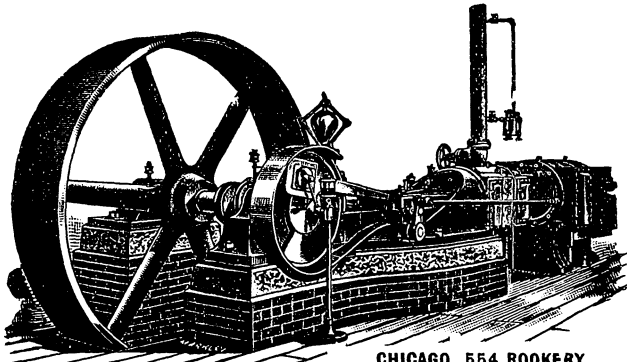
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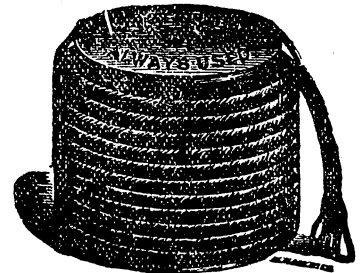


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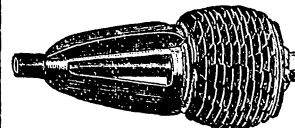


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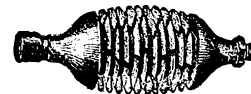
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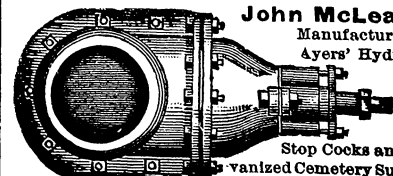
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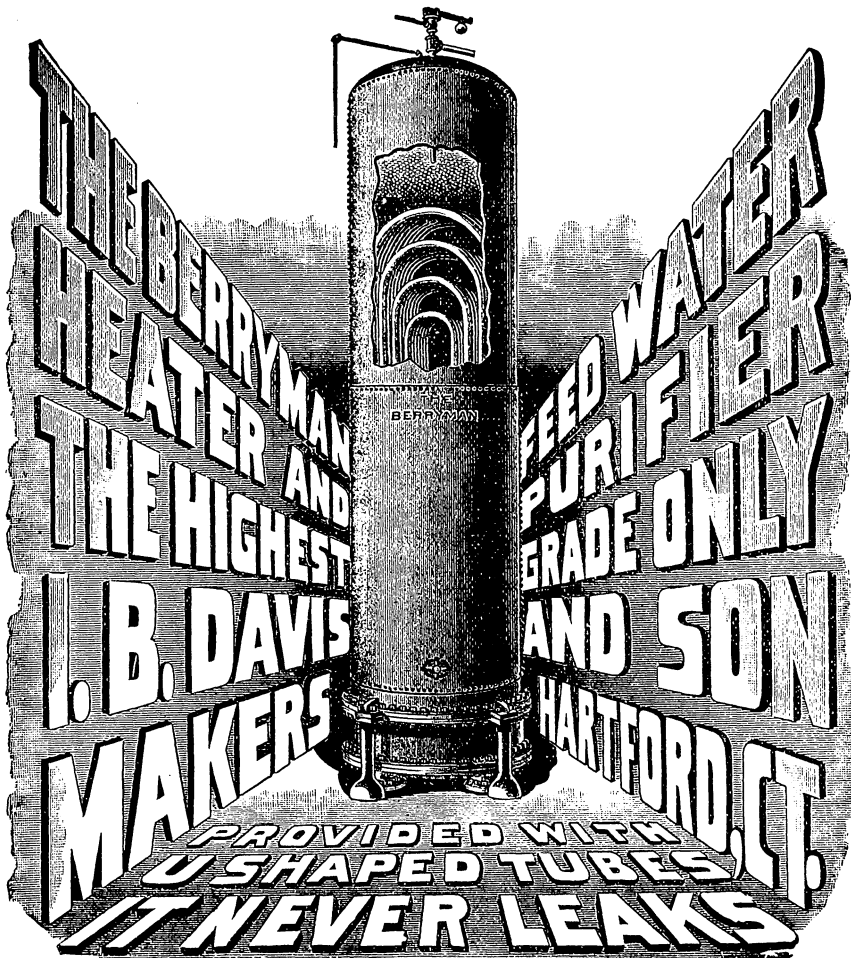
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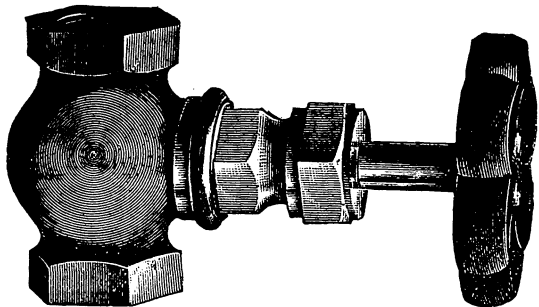
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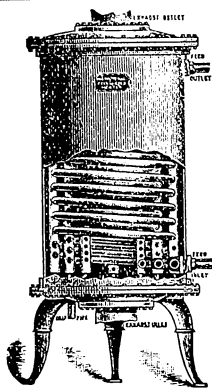
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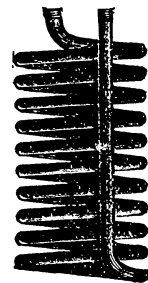


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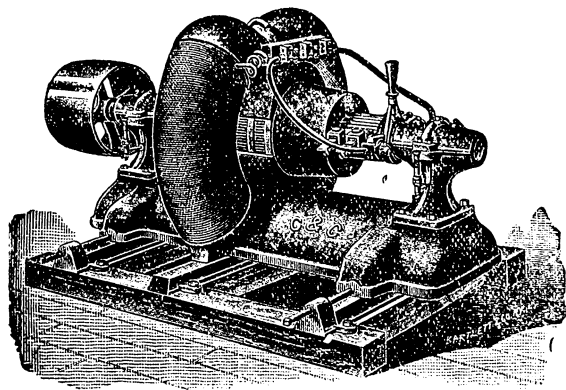
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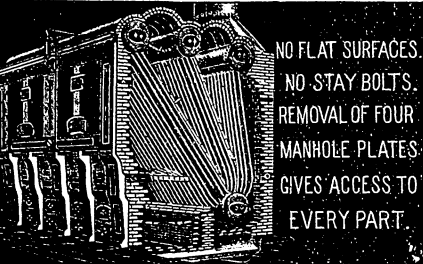
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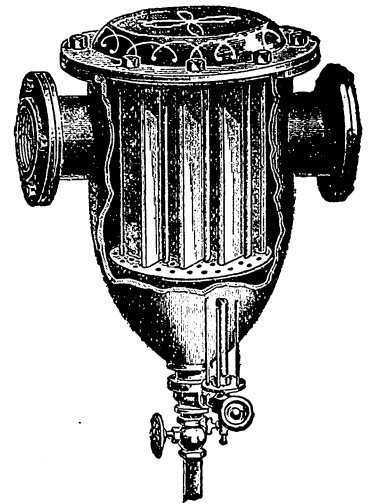
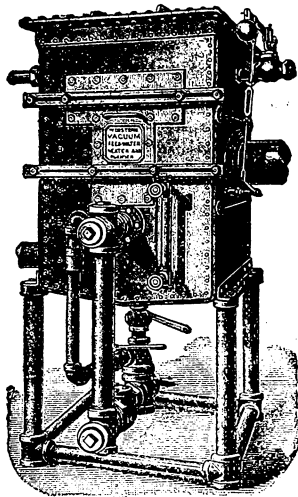
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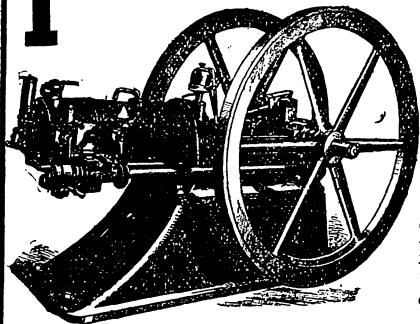
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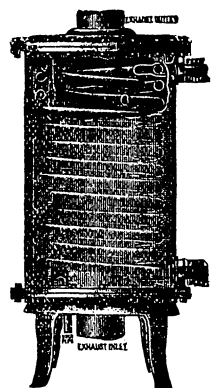
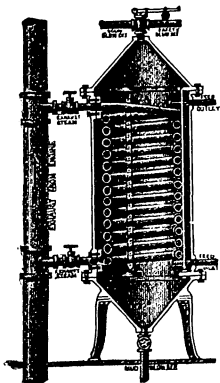
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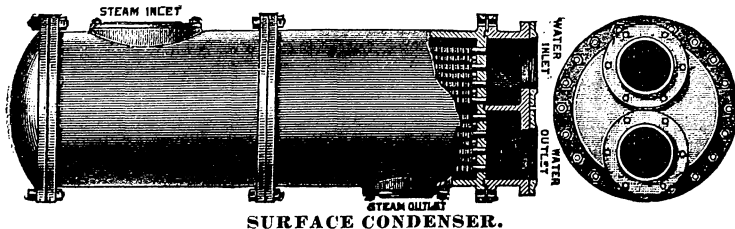
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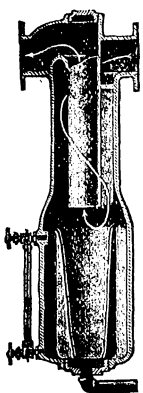
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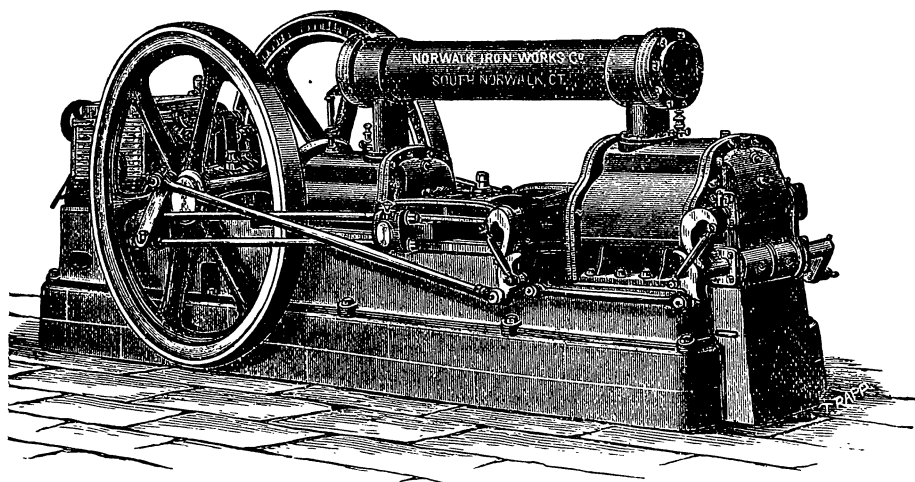
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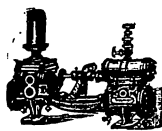
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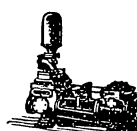
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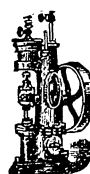
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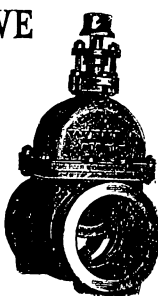
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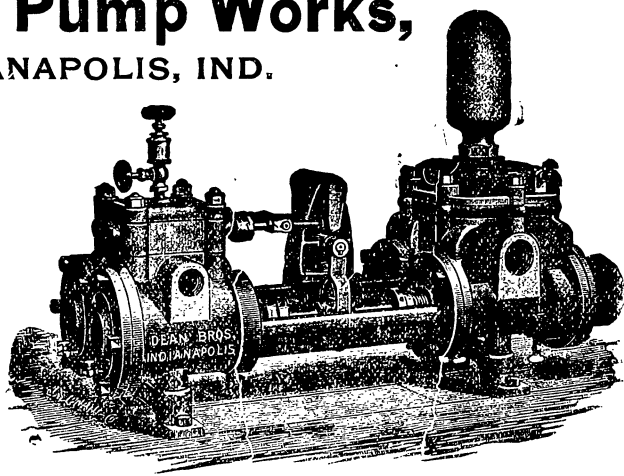
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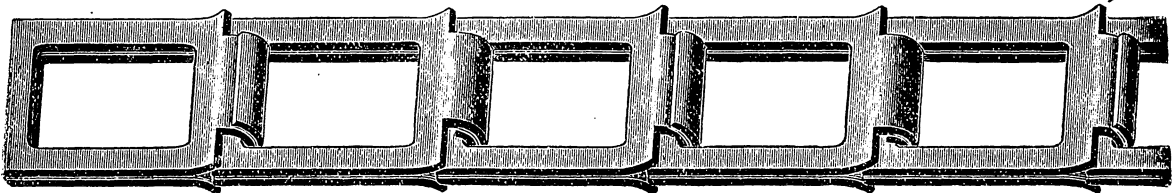
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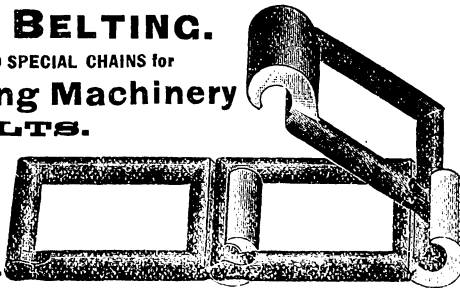
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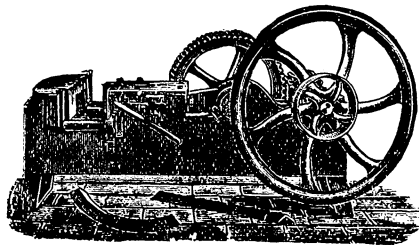
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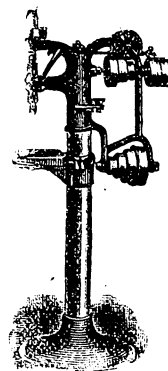
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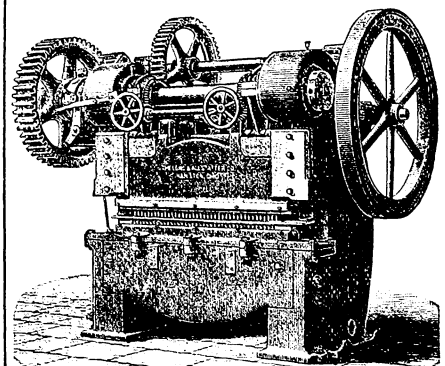
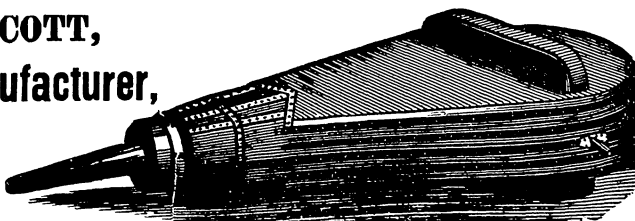
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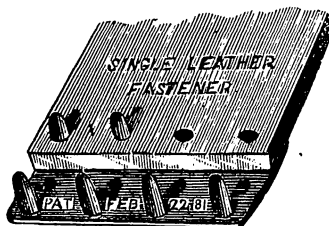
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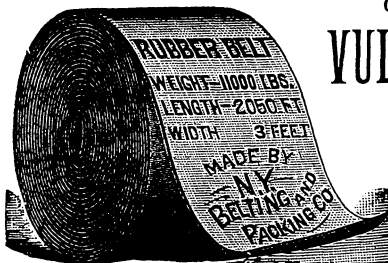
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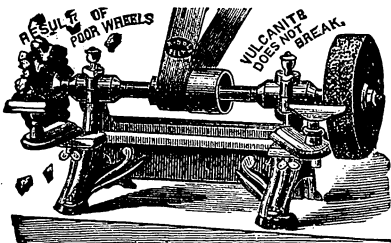
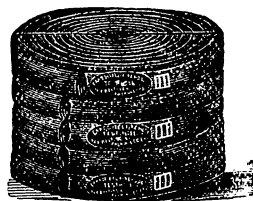
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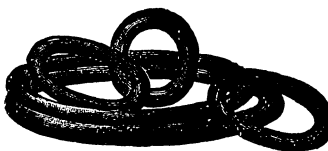
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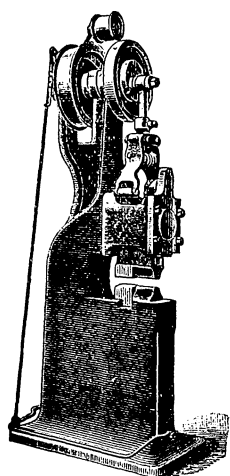
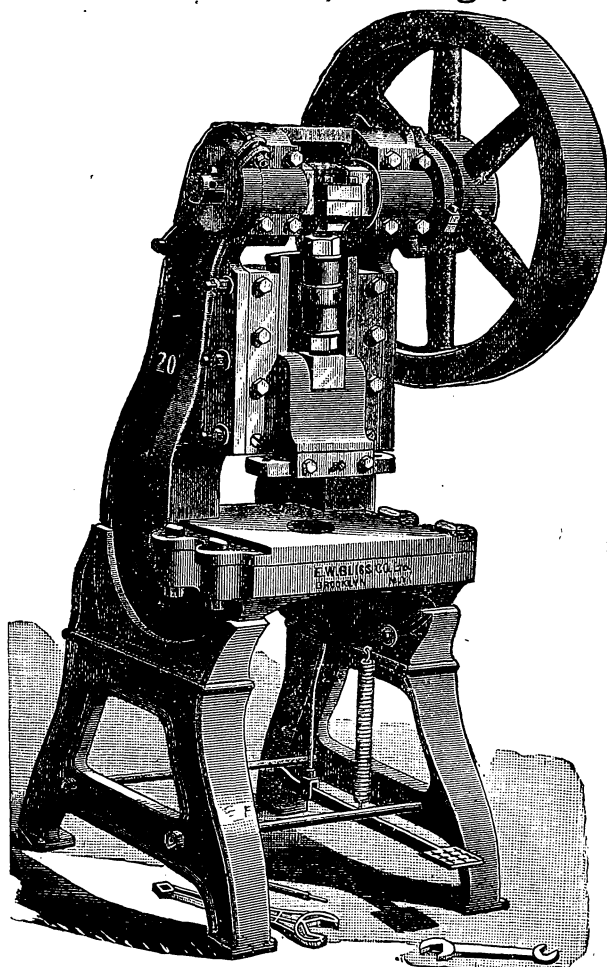
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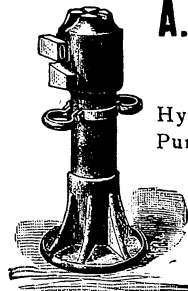
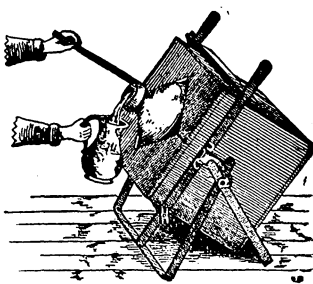
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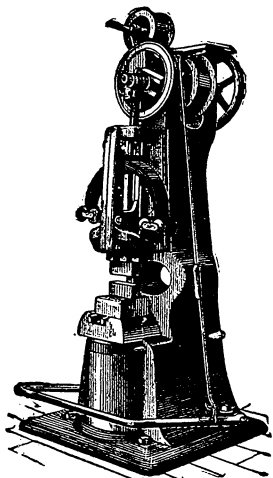
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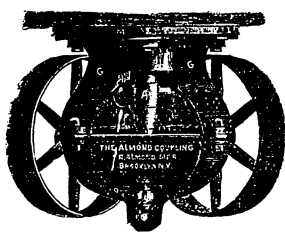
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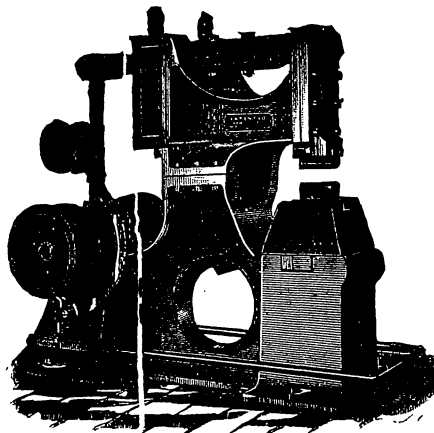
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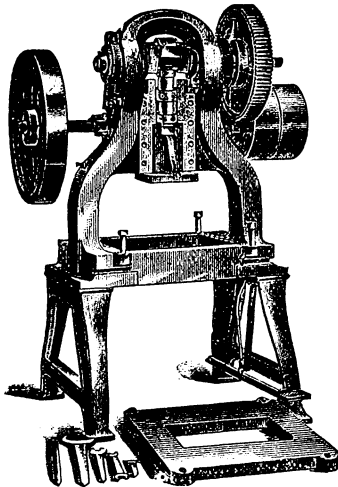
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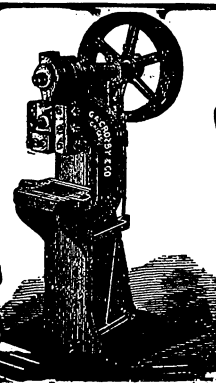
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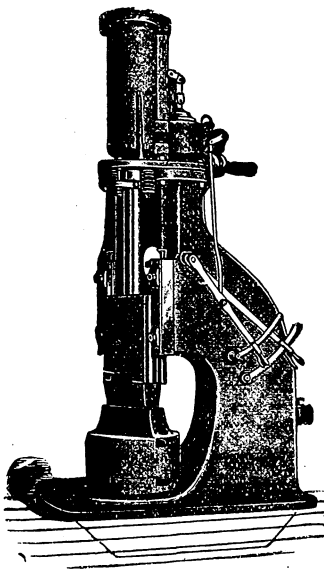
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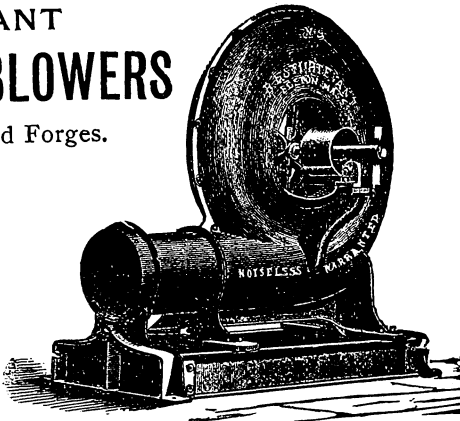
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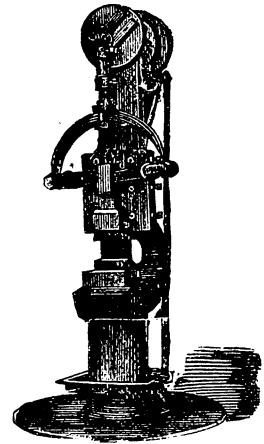
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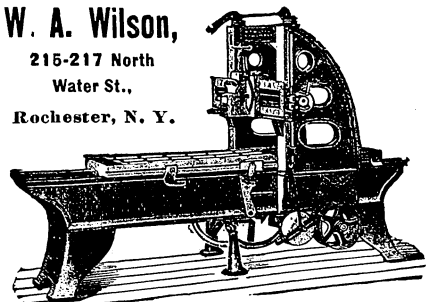
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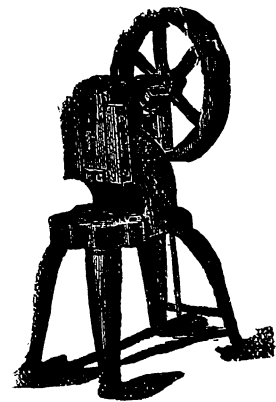
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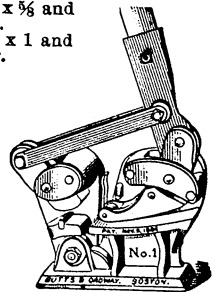
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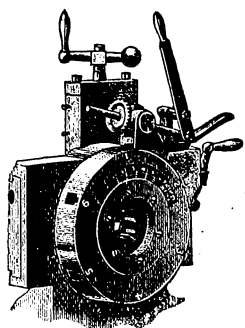
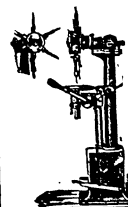
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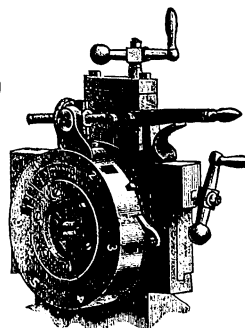
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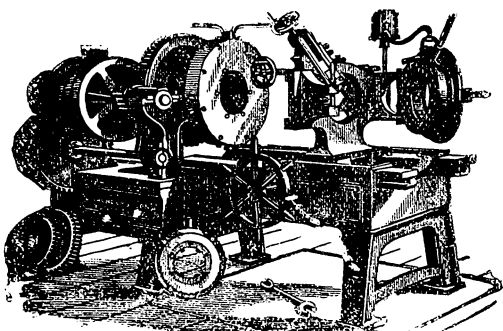
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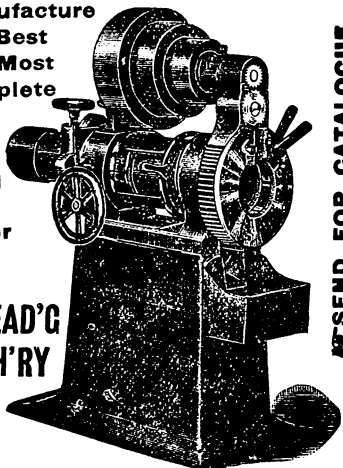
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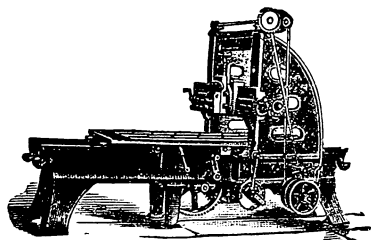
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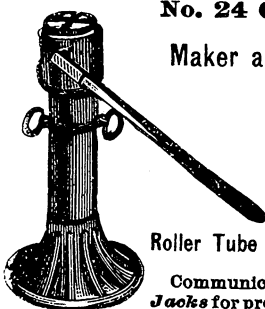
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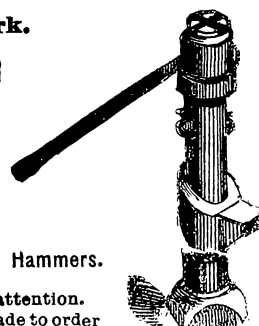
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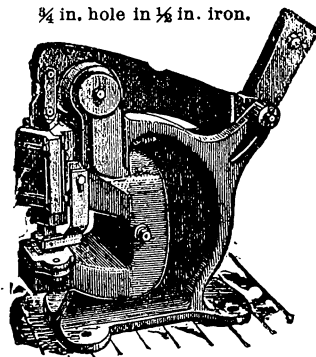
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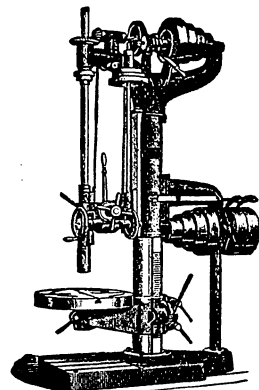
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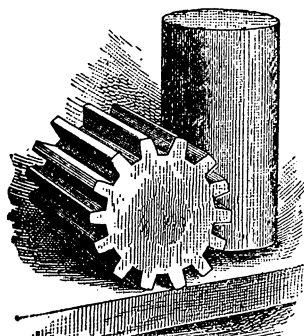
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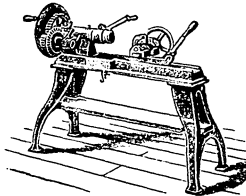
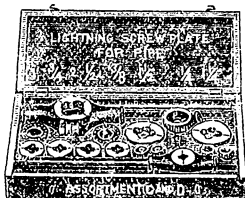
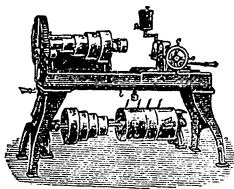


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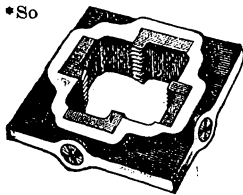
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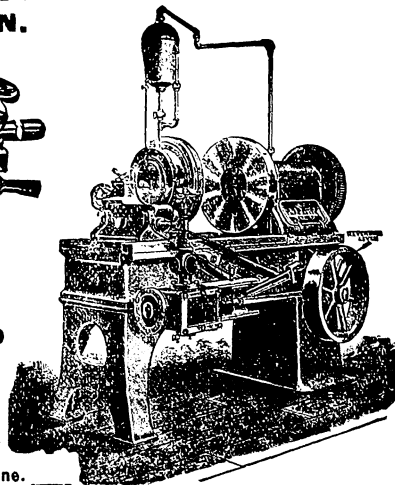
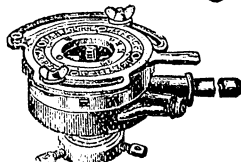
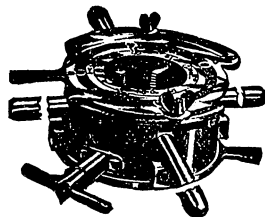
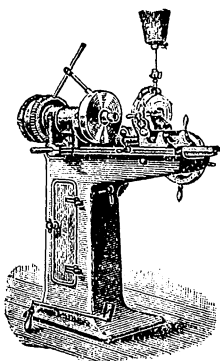
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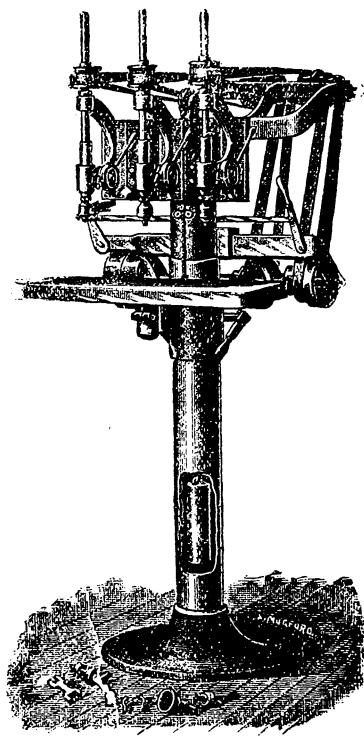
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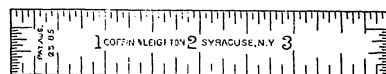
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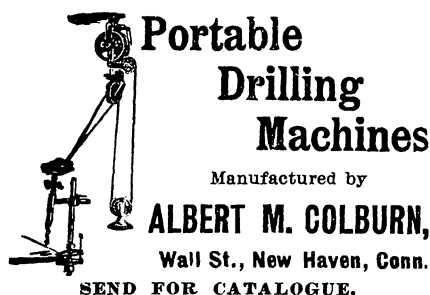
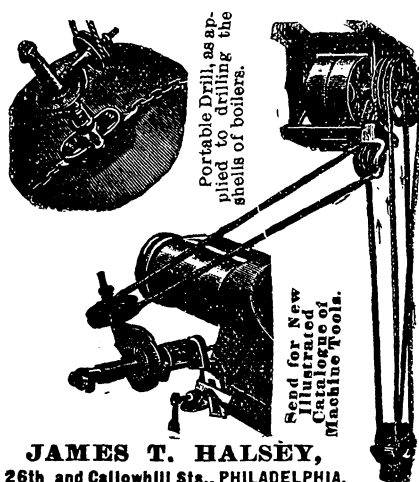
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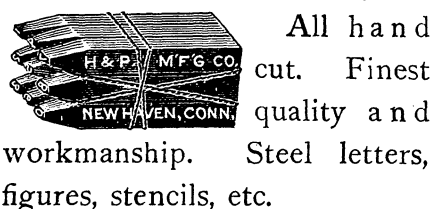
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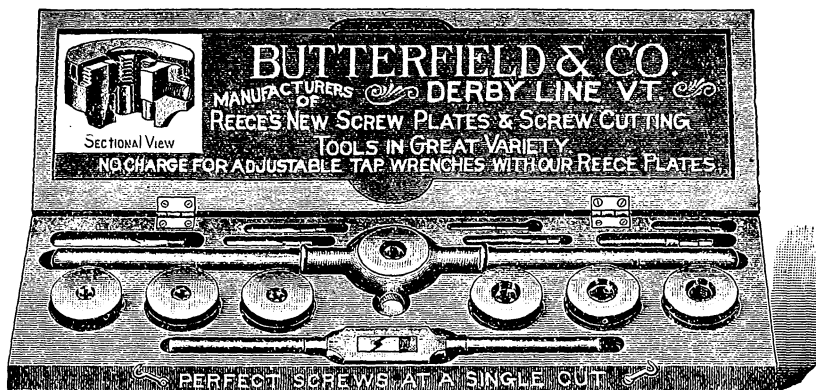
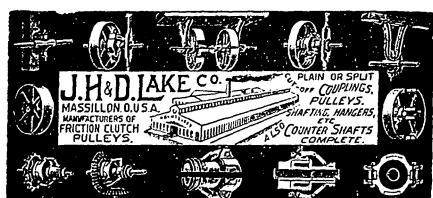


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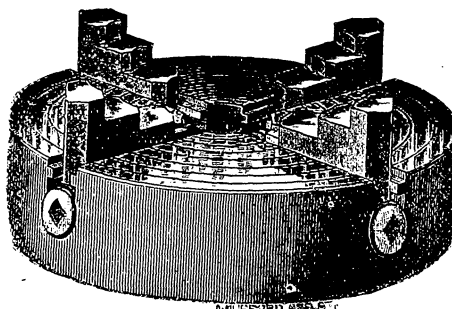
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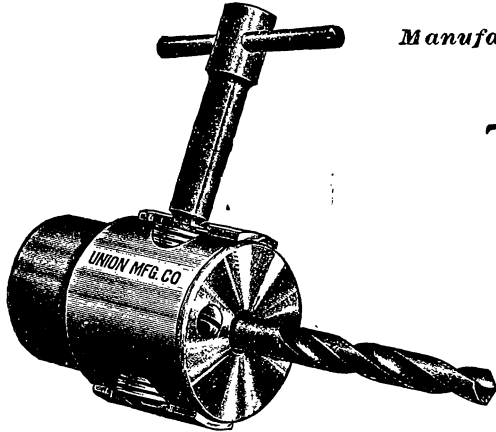
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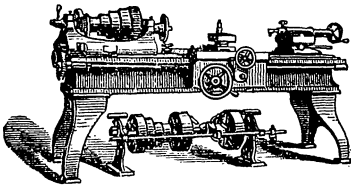


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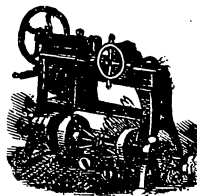


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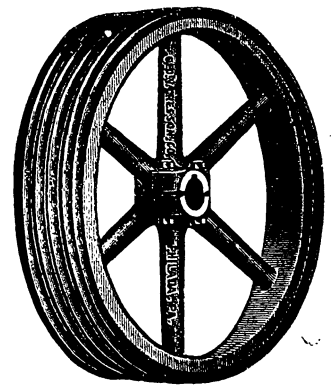
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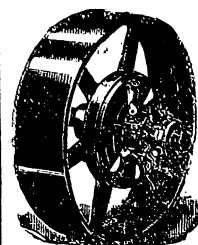
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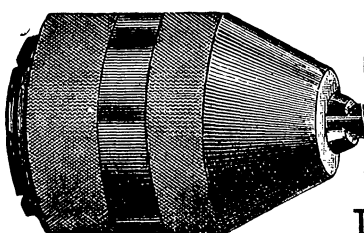
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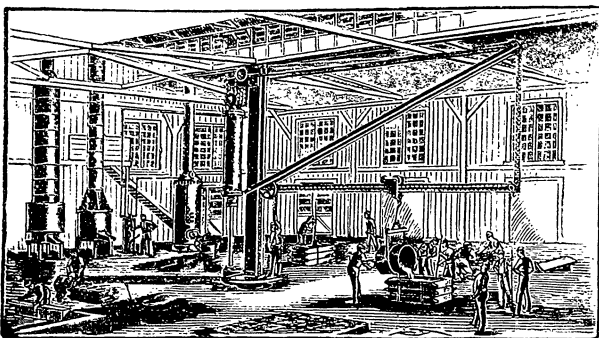
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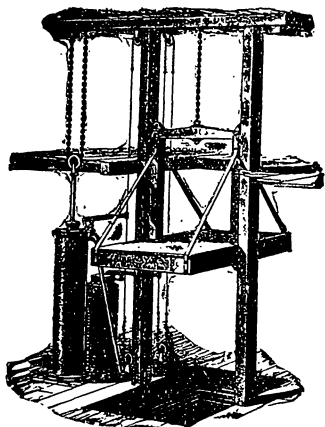
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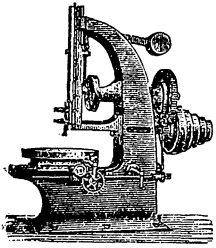
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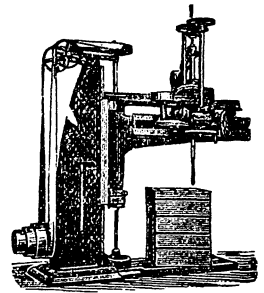


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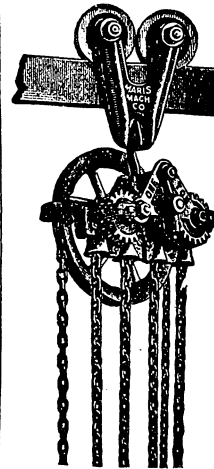
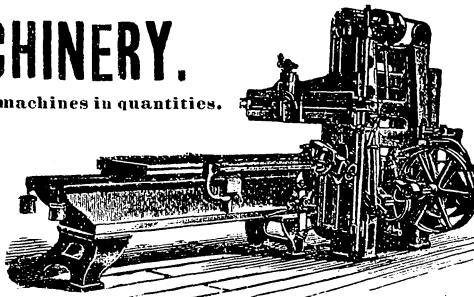
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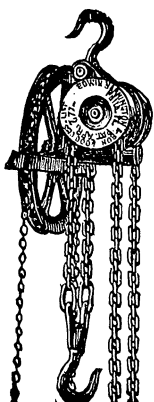
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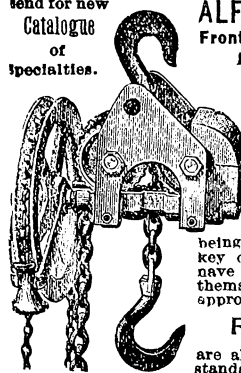
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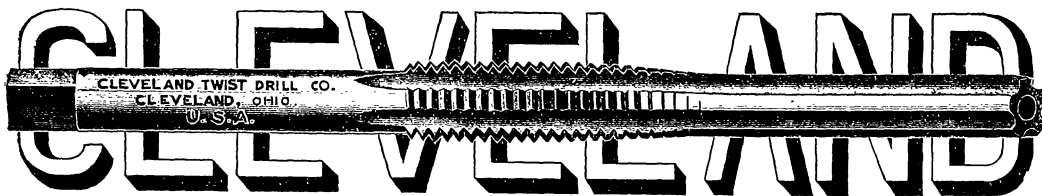
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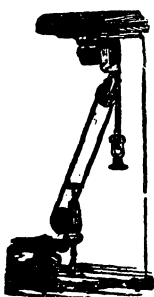
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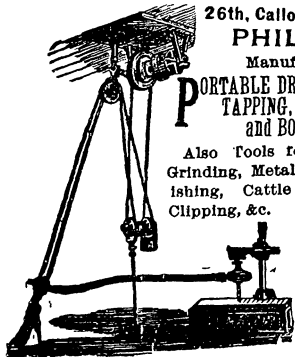
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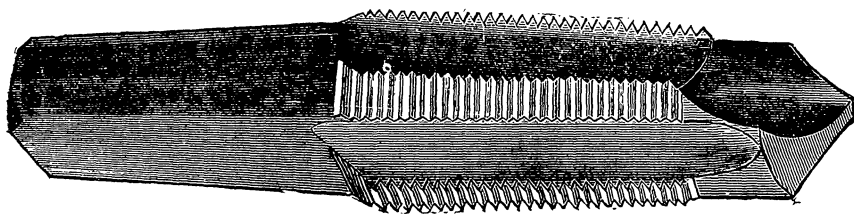
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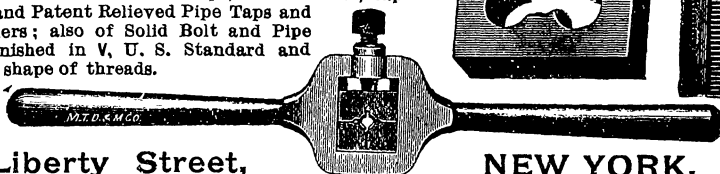
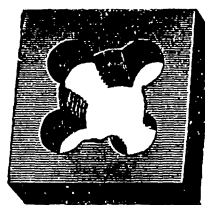
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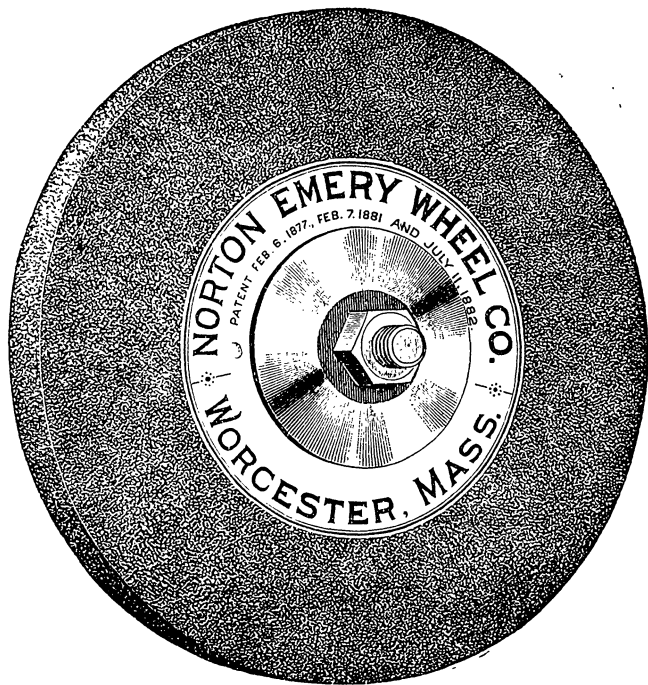
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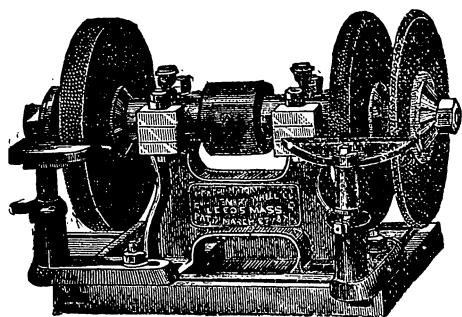
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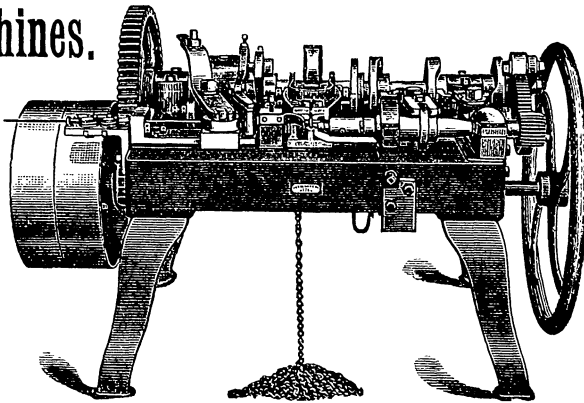
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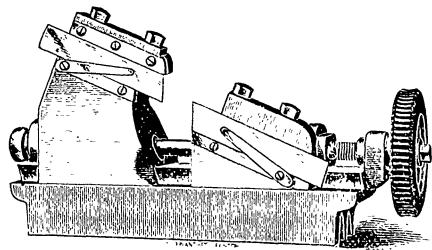
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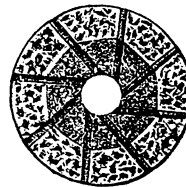
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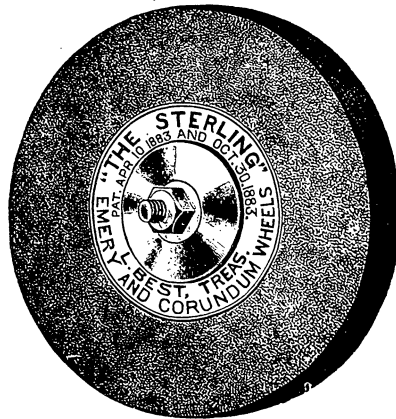
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And yet we think frequently a man who uses asphaltum is justified in emphasizing his remarks when he finds a lot of stuff all granulated and about a quarter of a barrel of dirt and sediment, or if in cold weather he tries to reduce it with naphtha and finds he has asphalt pudding. MORAL: Use Nubian.

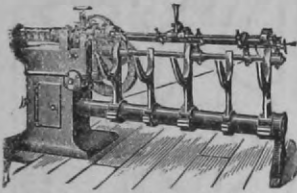
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Automatic Wire Straightening and Cutting Machine.

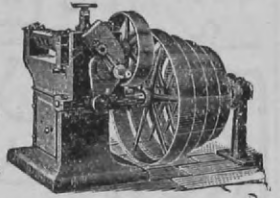
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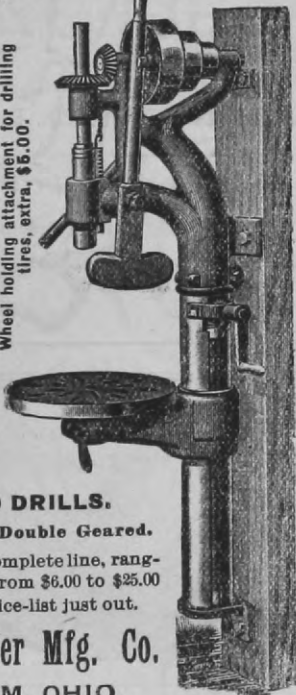
Automatic Wire Straightening and Cutting Machine.

Silver's Power Post Drill.

FIG. 727.

Has OUT GEARS, and is a thoroughly first-class tool in all respects. Dia. Column, 4 1/2 in.; Dia. Spindle, 1 3/8 in.; and bored No. 3 Morse Taper; Vertical Travel, 6 in.; Drills to centre 19 in. circle.

Weight, 325 lbs.; Price, \$60.00.
Wheel holding attachment for drilling tires, extra, \$5.00.



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Single and Double Geared.

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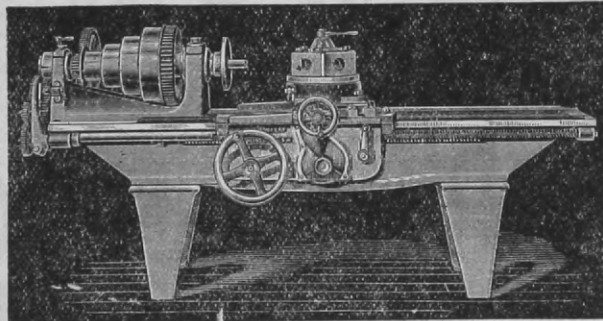


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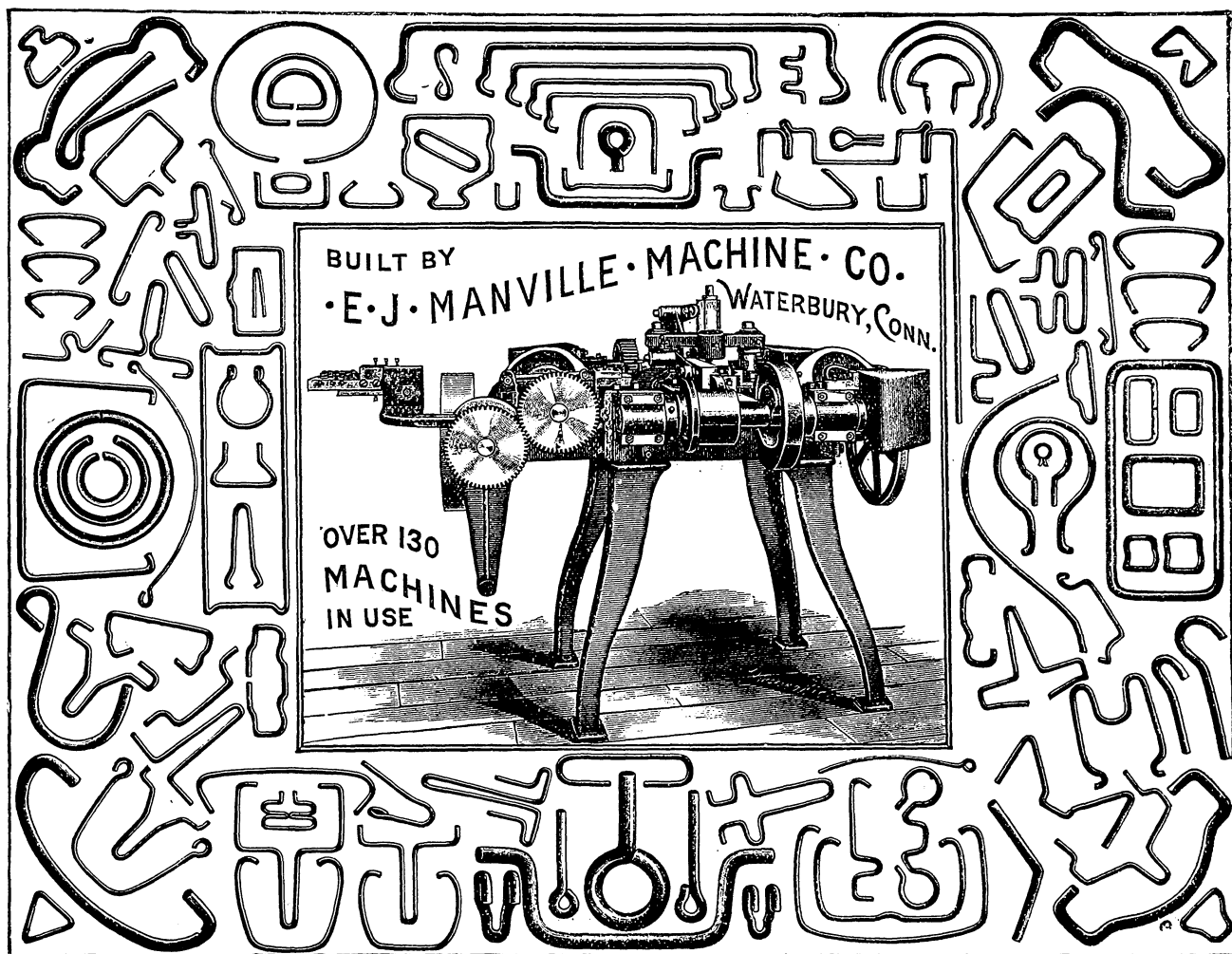
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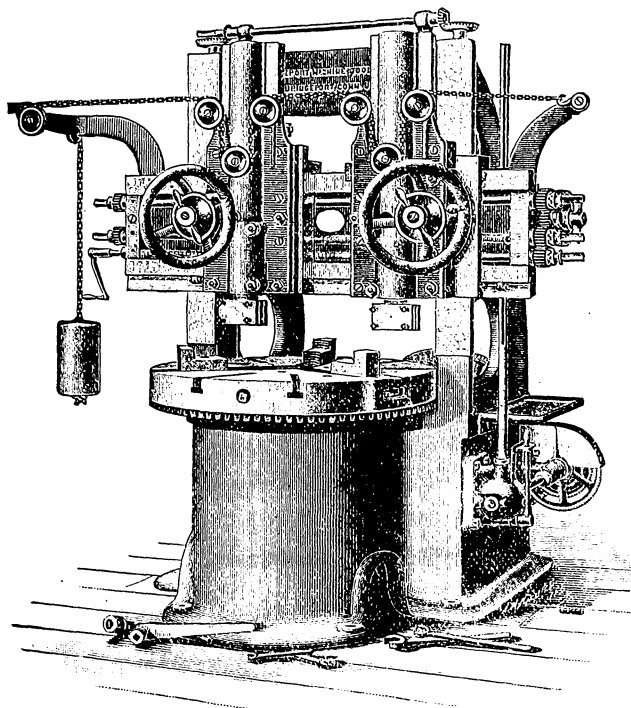
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Shan't we send you full particulars?

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85 in. x 7 ft. Hewes & Phil. Good order.
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36 in. x 14, 18 ft. "New Improved."
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Speed Lathes, 10 and 12 in., with Slide Rests.
Pulley Lathe, 36 in., with two Rests. Good order.
Universal Milling Machine. "New Improved Style."
Standard " " Arm and Automatic Feed.

For light work.
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Gear Cutter, 36 in., Semi-Auto. Heavy pattern. A1
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Bending Rolls, 6 ft. 8 in. Good order.
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For Sale Cheap.

Special lot of NEW ENGINE LATHES,

13 in. x 5 ft. 17 in. x any length bed.
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Responsible parties to manufacture and sell
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of the road, cover it over and thus prevent
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Purchasers for the following.
70 Horse High Speed Automatic Engine, new; suit-
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24 inch swing, 25 foot Bed Engine Lathe, used about
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One 14 x 24 Trenton Automatic Cut-off Engine,
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Wright Automatic Engine (Poppet Valve) 16
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Second-hand Engines, Boilers, Pumps, Lathes
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14 in. x 6 ft. Fitchburg Engine Lathe.
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All in good order.

Also 600 new and second-hand tools in
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Engines with Cylinders 26 in. x 48 in. and
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BECKETT, MILES & CO. Make, NEW,
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**93-INCH Throat HYDRAULIC RIVET-
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10-TON TRAVELING CRANE 24 ft
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Pennsylvania Mch. Co., Ltd.,
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Machinery,

Second-Hand and New, on Hand.

No. 4, 3, 2 Stiles Punch Presses.
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15 x 6 Eng. Lathe, Taper Attach., " "
18 x 6 Eng. Lathe, Bridgeport Mch. Tool Wks.
200 lb. Drop Hammer, Bliss.

Magnetic Separating Machine, Dynamo for Electro-
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Engine Lathes from 11 inch Swing to 90 inch Swing.
Drill Presses, Regular, from 10 to 44 inch Swing.
" " Radial, H. & Jones, 48 "
Gang Drills, 2 Spindle and 4 Spindle.
Lot of Special Drills for Butt Drilling.
Special Butt Milling Machine.
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No. 12 " " 24 inch Swing by 8 ft. Bed, Am.

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Lot of Polishing Mch'y., Leather Covered Wheels, etc.
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TWO OF THEM; SECOND HAND.

Makers' Name, KERKHOFF & CO.
Height, 8 ft. 2 in.

Greatest Distance Spindle
to Base Plate, 52 in.
Greatest Distance Table
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Weight complete, 2600 lbs.
Back Geared and Power Feed, Quick Return,
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24 x 48 Miller & Allen Corliss Engine.
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16 x 24 " " " New.
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A large number of new and second-hand Boilers, Engines, Lathes, Planers, Shapers, Millers, &c., in stock.

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SECOND-HAND MACHINERY.

One Fifield Screw Cutting Engine Lathe, 30 in. swing on 16 ft. bed, with blocks to raise same to swing 47 in.
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2 10 in. 3-Spindle Slate.
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Also, large variety of other machines. Write for complete list and detailed description.

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75 H.-P. Vertical Engine.

Cylinder 16 in. x 16 in.

Center Crank with outboard bearing, Bronze boxes. Has heavy Fly Wheel and Pulley, Governor and Heater. It is thoroughly well built and is in excellent order. Price \$250, Phila. Who wants it? Answer quick!

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9 ft. x 11 ft. Scotch Boiler, 110 lbs. Steam.
8 ft. x 4 ft. Marine Type Boiler, 00 lbs. Steam.
Knowles Independent Condenser for 350 H.-P. Bar.
Surface Condenser for 300 H.-P.
Deane Fire Pump, 14 x 7 x 14.
Davidson Pumps, 24 x 12 x 24.
Brass Fitted, 16 x 9 1/4 x 16.
14 x 8 1/4 x 14.
12 x 10 x 12.
Guild & Garrison Tank Pump, 24 x 22 x 24.
Compound Duplex, 14 and 20 x 5 x 5.
10 " 16 x 10 1/4 x 10.
7 " 16 x 7 x 8.
60 Ton Flywheel, 28 ft. dia.
Scow, 70 ft. x 23 ft. x 5 ft. hold.
Hydraulic Elevator. Whittier. Cylinder 16 in. x 6 ft.
Gear 10, 1 Car, travels 60 ft. All complete.

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Engines, all sizes, Slide Valve and Automatic.
Boilers, all sizes, Horizontal, Vertical and Locomotive.
Hoisting Engines, Portable Engines, Steam Pumps.
20 Screw Cutting Lathes, 12 in. to 24 in. swing.
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24 in., 30 in. and 36 in. Planers, 6 in., 12 in. and 15 in. Shapers.
44 in. Radial Drill, 1 1/2 in. National Bolt Cutter.
Power Shears, 3/4 in. iron, 15 in. Gap.
Hydraulic and Punching Presses.
10 lbs., 25 lbs., 60 lbs. hammers for belt.
4 1/2 Pratt & Whitney cut-off machine.
Brown & Sharpe Grinding Lathe.
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In lots to suit, and ready for delivery.

3000 tons 60 lb. Steel T Rails.
450 tons 56 lb. Steel T Rails.
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400 tons 50 lb. Steel T Rails.
350 tons 40 lb. Steel T Rails.
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500 tons 35 lb. Iron T Rails.
250 tons 30 lb. Iron T Rails.
120 tons 30 lb. Steel T Rails.
150 tons 25 lb. Iron T Rails.
140 tons 20 lb. Steel T Rails.
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1700 tons Johnson Girder Rails, 38, 48, 52 and 66 lb. Rails.

All selected and in excellent condition for relaying and only slightly worn.
Second hand selected and sound rails furnished in specified lengths for builders' use. For prices and particulars apply to

JOSEPH JEWKES,
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FOR SALE.

1 Corliss Engine, nearly new; 250 H. P.
20 in. x 30 in. Wrigley Automatic Engine.
3 60 H.-P. Armington & Sims Engines.
1 Blake Crusher and 2 Elevator Engines.

WILSON & ROAK &

[Front and Dover Streets, New York City.]

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1 12 H.-P. Upright Boiler.
1 6 H.-P. Horizontal Engine.
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All in good order, or would exchange for a small Planer.

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AT ALL TIMES

we have on hand Steam Pumps, Second-hand and New. Every Second-hand pump is tested and guaranteed before leaving shop. Write us for information, also for catalogue, circulars, prices, etc., of the celebrated "Hooker Patent Steam Pump," which we manufacture.

HOOKE-COLVILLE STEAM PUMP CO.,
St. Louis, Mo.

CORLISS

And Other Automatic Slide Valve Engines, Etc.

Corliss.	High Speed	Horizontal	Vertical
Auto.	Slide Valve.	Slide Valve.	Slide Valve.
10 x 20	11 x 20	9 x 24	20 x 24
10 x 24	10 x 14	10 x 12	13 x 16
16 x 42	13 x 12	10 x 24	10 x 13
23 x 36	Horizontal Slide Valve.	11 x 20	9 x 10
26 x 43	23 x 36	12 x 18	9 x 9
30 x 60	16 x 36	12 x 24	7 x 7
30 x 72	15 x 24	14 x 24	5 x 5

HORIZONTAL BOILERS, 3, 4 x 16; 8, 5 1/4 x 16; 5, 5 x 16; 3, 6 x 18; 1, 4 1/2 x 12, and several others.
LOCOMOTIVE BOILERS, 30, 45, 50, 100 and 150 H.-P.
One 1000 gal. Duplex Fire Pump, Brennan Crusher, Bogardus Mill, Burr Mill, Fan Blower, Platform Scales, etc., etc. Send for catalogue.

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For sale, one 2 high and one 3 high 30-inch Train, will roll heavy and light plates up to 60 in. In complete order. Made by Garrison & Co.
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For sale, Horizontal Engine 39 in. x 72 in.; 2 Fly Wheels weighing 53 tons each.
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Heavy Plate and Bar Shears, Engines, Boilers, Pumps, Cranes, Fairbanks Testing Machine, &c., &c., for sale by
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FLOOR PLATES.

FOR SALE.—A Superior Lot of Cast Iron Plates 2 ft. x 4 ft. They are made to avoid warping and cracking. Will sell in lots to suit.
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BAKER BLOWERS, Nos. 3, 4, 4 1/2, 5, 5 1/2, 6, 7 and 7 1/2
ROOT BLOWERS, Nos. 1/2, 1, 2, 3, 5, 6 and 7.
Buffalo Blowers and Heating Apparatus.
1 Corliss Band Wheel, 12 ft. x 24 in. in halves.
1 No. 9 CLAYTON DUPLEX AIR COMPRESSOR, 23 in. Steam x 24 in. Air x 30 in. Stroke. Bargain.

A Variety of Machinery, very cheap.
Do you want to buy or sell Machinery? If so, write
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Rolling Mill Machinery,

Blast Furnace Machinery,
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SECOND-HAND IRON WORKING MACHINERY.

1 4 1/2 in. Gear Cutting Machine.
1 30 in. x 30 in. x 10 ft. Bancroft Planer.
1 32 in. x 32 in. x 6 ft. Wood & Light Planer.
1 25 in. x 25 in. x 7 ft. Blaisdell Planer.
1 22 in. x 22 in. x 6 ft. Wheeler Planer.

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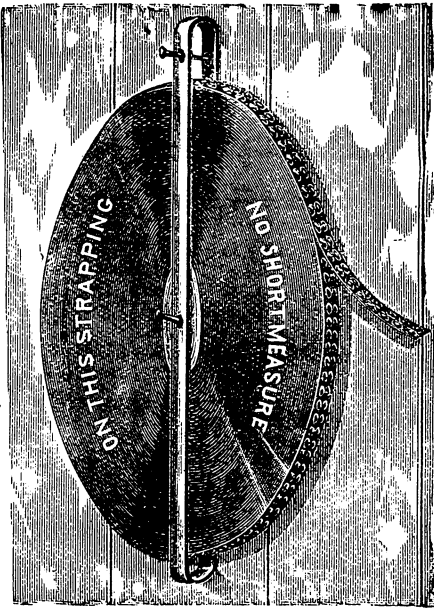
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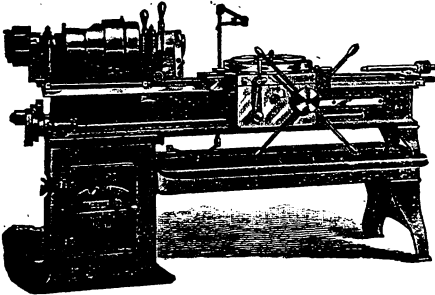
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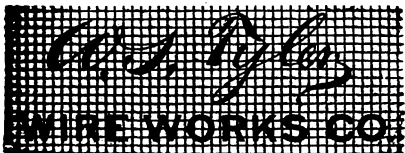
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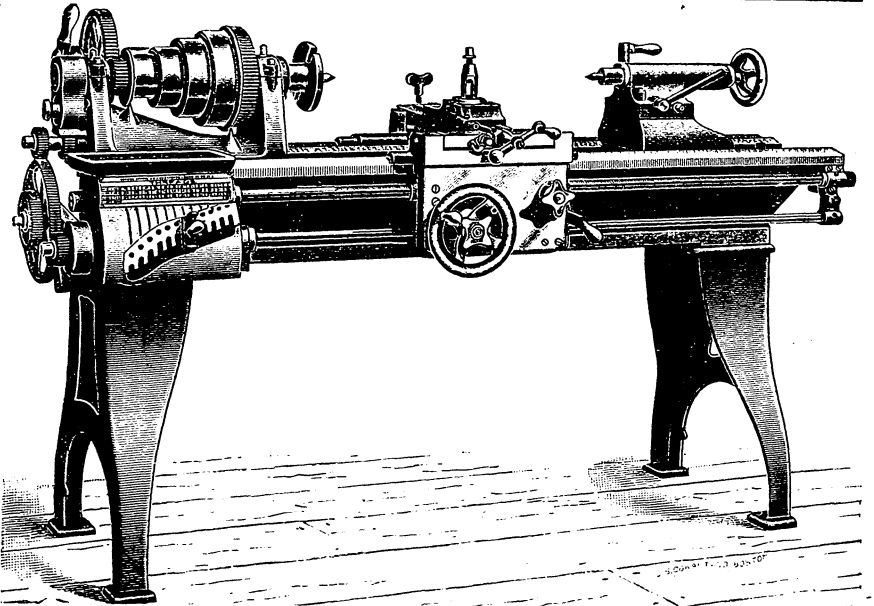
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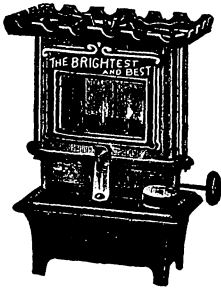
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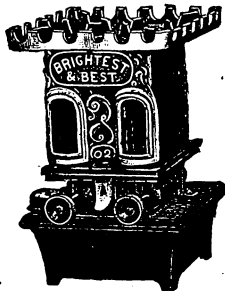
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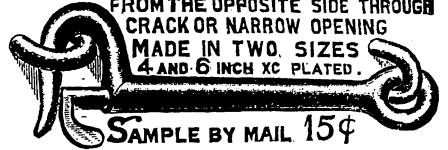
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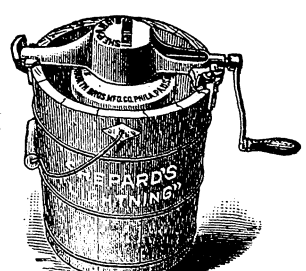
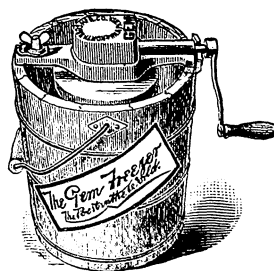
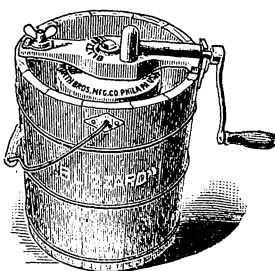
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20.....	" .85	3.65
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24.....	" 1.00	4.50
26.....	" 1.15	5.00
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OVAL MEAT DISHES.

12 Inches.....	per doz., \$8.00
14 ".....	" 8.00
16 ".....	" 10.75
18 ".....	" 13.25

OBLONG PUDDING DISHES.

No. 10.....	per doz., \$4.00
11.....	" 4.50
12.....	" 5.50
13.....	" 6.50
14.....	" 8.00
15.....	" 9.50

HANGING SOAP DISHES.

No. 65.....	per doz., \$3.00
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OBLONG SOAP DISHES.

No. 50.....	per doz., \$3.00
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COVERED OBLONG SOAP DISHES.

No. 55.....	per doz., \$4.75
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OVAL SOAP DISHES.

No. 40.....	per doz., \$3.00
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COVERED OVAL SOAP DISHES.

No. 45.....	per doz., \$4.50
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ROUND SOAP DISHES.

No. 1.....	per doz., \$2.50
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WALL SOAP DISHES.

No. 60.....	per doz., \$3.00
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Shell Pattern.

No. 35.....	per doz., \$2.00
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OVAL VEGETABLE DISHES.

10 Inches.....	per doz., \$12.00</
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REDUCED PRICE LIST GRANITE IRONWARE.

Discount 25 per cent.

PATENT COVERED "CLIMAX" KETTLES.

With Patent Asbestos Bottoms.

No.	With Retained Covers.	With Granite Covers.
No. 901.....per doz.,	\$8.00	\$7.50
902....."	7.00	6.50
903....."	9.00	10.50
904....."	11.00	12.50
905....."	13.00	14.50
906....."	15.00	16.50

SEAMLESS COVERED CONVEX KETTLES.

No.	With Retained Covers.	With Granite Covers.
No. 1.....per doz.,	\$4.00	\$3.50
2....."	6.00	7.50
3....."	8.50	10.00
4....."	11.00	12.50
5....."	13.00	14.50
6....."	15.00	16.50
7....."	17.00	18.50
8....."	19.00	20.50
9....."	21.00	22.50
10....."	23.00	24.50
11....."	25.00	26.50
12....."	27.50	29.00
13....."	30.00	32.50

ROUND DINNER KETTLES.

No. 2, with tin top covers, per doz.,	\$12.00
3, with Gran. top cov.,	16.00

OVAL DINNER KETTLES.

No. 0.....per doz.,	\$20.75
1....."	23.50

SEAMLESS OVAL DINNER KETTLES.

No. 101.....per doz.,	\$30.00
111....."	22.75

COVERED FISH KETTLES.

16 Inches.....per doz.,	\$2.75
18....."	3.50
20....."	4.00
22....."	4.75
24....."	5.25
No. 018....."	2.75
018....."	3.50
020....."	4.00
022....."	4.75
024....."	5.25

EXTRA DEEP SEAMLESS FRUIT KETTLES.

2 Quarts.....per doz.,	\$7.50
3....."	8.00
4....."	8.50
6....."	9.00
7....."	9.50
8....."	10.50
10....."	12.00
12....."	13.50
16....."	16.00
24....."	18.50

MILK KETTLES.

No. 71.....per doz.,	\$8.00
72....."	11.00
73....."	14.00
74....."	18.00
76....."	22.00

"BOSTON" MILK KETTLES.

No. 81.....per doz.,	\$8.00
83....."	11.00
84....."	14.00
85....."	18.00
86....."	22.00
81½....."	8.75
82½....."	11.75
83½....."	14.75
84½....."	18.75

DEEP PRESERVING KETTLES.

No. 16.....per doz.,	\$5.50
18....."	6.50
20....."	7.50
22....."	8.50
24....."	9.50
26....."	11.00
28....."	12.50
30....."	14.00
32....."	17.00
36....."	20.00

LIPPED PRESERVING KETTLES.

No. 14.....per doz.,	\$3.50
16....."	4.00
18....."	5.00
20....."	6.00
22....."	7.00
24....."	8.00
26....."	9.00
28....."	10.50
30....."	12.50
32....."	15.00
36....."	18.00
40....."	22.50
50....."	37.50

COVERED SEAMLESS "ROYAL" KETTLES.

No.	With Retained Covers.	With Granite Covers.
No. 401.....per doz.,	\$4.00	\$3.50
402....."	4.75	6.25
403....."	5.75	7.25
404....."	6.75	8.25
405....."	7.75	9.25
406....."	8.75	10.25
407....."	9.75	11.50
408....."	11.00	13.50
409....."	12.75	15.25
410....."	14.75	17.50

PATENT COVERED "WINDSOR" KETTLES.

No.	With Retained Covers.	With Granite Covers.
No. 12.....per doz.,	\$4.50	\$8.00
14....."	5.50	7.00
16....."	6.50	8.00
18....."	7.50	9.00
20....."	8.50	10.00
22....."	9.50	11.00
24....."	10.50	12.00
26....."	12.00	14.00
28....."	13.50	16.00
30....."	15.00	18.00

PATENT STOVE KETTLES.

No. 6.....per doz.,	\$8.00
7....."	10.00
8....."	12.50
9....."	15.00

TEA KETTLES.

No. 6.....per doz.,	16.00
7....."	18.75
8....."	21.50
9....."	25.50
10....."	29.50
11....."	33.50
12....."	37.50
13....."	41.50
14....."	45.50
15....."	49.50
16....."	53.50
17....."	57.50
18....."	61.50
19....."	65.50
20....."	69.50
21....."	73.50
22....."	77.50
23....."	81.50
24....."	85.50
25....."	89.50
26....."	93.50
27....."	97.50
28....."	101.50
29....."	105.50
30....."	109.50
31....."	113.50
32....."	117.50
33....."	121.50
34....."	125.50
35....."	129.50
36....."	133.50
37....."	137.50
38....."	141.50
39....."	145.50
40....."	149.50
41....."	153.50
42....."	157.50
43....."	161.50
44....."	165.50
45....."	169.50
46....."	173.50
47....."	177.50
48....."	181.50
49....."	185.50
50....."	189.50
51....."	193.50
52....."	197.50
53....."	201.50
54....."	205.50
55....."	209.50
56....."	213.50
57....."	217.50
58....."	221.50
59....."	225.50
60....."	229.50
61....."	233.50
62....."	237.50
63....."	241.50
64....."	245.50
65....."	249.50
66....."	253.50
67....."	257.50
68....."	261.50
69....."	265.50
70....."	269.50
71....."	273.50
72....."	277.50
73....."	281.50
74....."	285.50
75....."	289.50
76....."	293.50
77....."	297.50
78....."	301.50
79....."	305.50
80....."	309.50
81....."	313.50
82....."	317.50
83....."	321.50
84....."	325.50
85....."	329.50
86....."	333.50
87....."	337.50
88....."	341.50
89....."	345.50
90....."	349.50
91....."	353.50
92....."	357.50
93....."	361.50
94....."	365.50
95....."	369.50
96....."	373.50
97....."	377.50
98....."	381.50
99....."	385.50
100....."	389.50

"ROYAL" TEA KETTLES.

No. 60.....per doz.,	\$18.00
70....."	19.00
80....."	23.00
90....."	28.00
100....."	32.00

TEA KETTLES.

No. 16½.....per doz.,	\$12.50
18½....."	14.00
20½....."	16.00
22½....."	18.75
24½....."	21.50
26½....."	25.50

SEAMLESS CONVEX TEA KETTLES.

No. 302.....per doz.,	\$15.00
303....."	17.50
304....."	20.00
305....."	25.00
306....."	30.00

"MIKADO" TEA KETTLES.

No. 204 Complete.....per doz.,	\$24.00
Stands and Lamps only....."	10.00
No. 104....."	14.00
105....."	16.00

FLAT HANDLE LADLES.

No.	Solid.	Pierced.
No. 8.....per doz.,	\$2.00	\$2.00
9....."	2.20	2.20
10....."	2.40	2.40
11....."	2.60	2.60
12....."	2.80	2.80
13....."	3.00	3.00

SOUP LADLES.

No. 29.....per doz.,	\$2.50
38....."	2.50

SEAMED "STANDARD" MEASURES.

¼ Pint.....per doz.,	\$3.50
½ "....."	4.00
1 "....."	5.00
1 Quart....."	6.50
2 "....."	8.00
4 "....."	12.00

SEAMLESS "STANDARD" MEASURES.

¼ Pint.....per doz.,	\$4.00
½ "....."	4.50
1 "....."	5.50
1 Quart....."	7.50
2 "....."	10.00
4 "....."	13.50

DEEP TUBED CAKE MOULDS.

No. 42.....per doz.,	\$4.75
43....."	5.50
44....."	6.50
45....."	7.50
46....."	8.50

DEEP OCTAGON CAKE MOULDS.

With Tube.

No. 720.....per doz.,	\$5.00
730....."	6.00
740....."	7.00
750....."	8.00
760....."	9.00

Without Tube.

No. 72.....per doz.,	\$4.00
73....."	5.00
74....."	6.00
75....."	7.00
76....."	8.00

SHALLOW OCTAGON CAKE MOULDS.

With Tube.

No. 201½.....per doz.,	\$3.50
202....."	4.00
203....."	5.00
204....."	6.00

Without Tube.

No. 301½.....per doz.,	\$3.00
302....."	3.50
303....."	4.50
304....."	5.50

TURBAN CAKE MOULDS.

With Tube.

No. 86.....per doz.,	\$5.00
87....."	6.00
88....."	7.00
89....."	8.00

Without Tube.

No. 6.....per doz.,	\$4.00
7....."	5.00
8....."	6.00
9....."	7.00

TURK'S HEAD CAKE MOULDS.

No. 61.....per doz.,	\$5.00
61½....."	6.00
62....."	7.00
63....."	8.00
64....."	10.00

STRAIGHT TUBED CAKE MOULDS.

No. 101½.....per doz.,	\$3.50
102....."	4.00
103....."	5.00
104....."	5.50

CHILDREN'S MUGS.

No. 3.....per doz.,	\$2.50
5....."	3.00

CHAMBER PAILS.

Seamless.

No. 3.....per doz.,	\$28.00
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Seamed.

No. 2.....per doz.,	\$22.50
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COMMODO ATTACHMENT FOR CHAMBER PAILS.

No. 10.....per doz.,	\$10.00
20....."	10.00

MILK PAILS—WITH STRAINER.

No. 5.....per doz.,	\$25.00
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LIPPED WATER PAILS.

No. 300.....per doz.,	\$17.50
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OVAL BAKE PANS.

No. 1.....per doz.,	\$5.00
2....."	6.00
3....."	7.50
4....."	9.00
5....."	12.00

ROUND BAKE PANS.

¾ Quarts.....per doz.,	\$3.00
1 "....."	3.50
1½ "....."	4.00
2 "....."	4.50
3 "....."	5.00
4 "....."	5.50
5 "....."	6.00
6 "....."	7.00
8 "....."	8.00
10 "....."	9.50

BED PANS.

No. 1.....each,	\$2.75
2....."	2.75

BIDET PANS.

No. 10.....each,	\$2.00
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PATENT CORN CAKE PANS.

No. 7.....per doz. Cards,	\$9.50
7½....."	13.50

JELLY CAKE PANS.

9 x ¾ Inches.....per doz.,	\$2.25
10 x 1 "....."	2.75

MOUNTAIN CAKE

REDUCED PRICE LIST GRANITE IRONWARE.

Discount 25 per cent.

PATENT COVERED "CLIMAX" SAUCE PANS.

With Patent Asbestos Bottom.

No.	With Retained Covers.	With Granite Covers.
No. 801.....per doz.,	\$8.00	\$7.50
802....."	7.00	8.50
803....."	9.00	10.50
804....."	11.00	12.50
806....."	13.00	14.50
808....."	15.00	16.50

SEAMLESS COVERED CON- VEX SAUCE PANS.

No.	With Retained Covers.	With Granite Covers.
No. 1/4.....per doz.,	\$4.00	\$5.50
1....."	6.00	7.50
2....."	8.50	10.00
3....."	11.00	12.50
4....."	13.00	14.50
6....."	16.00	17.50
8....."	20.00	21.50

LIPPED SAUCE PANS.

No.	With Rings.	With Granite Covers.
No. 9.....per doz.,	\$2.00	
10....."	2.50	
12....."	3.00	4.00
14....."	3.50	5.00
16....."	4.00	5.50
18....."	5.00	6.50
20....."	6.00	8.00
22....."	7.00	9.50
24....."	8.00	11.00
26....."	9.00	12.50
28....."	10.50	14.50
30....."	12.50	

"ST. LOUIS" SEAMLESS STRAIGHT COVERED SAUCE PANS.

No.	With Retained Covers.	With Granite Covers.
No. 50.....per doz.,	\$3.75	\$4.25
100....."	4.50	5.25
200....."	5.00	6.50
300....."	6.00	7.25
400....."	7.50	8.75
600....."	9.00	10.50
800....."	11.00	13.00
1000....."	13.00	15.00

COVERED SEAMLESS "ROYAL" SAUCE PANS.

No.	With Retained Covers.	With Granite Covers.
No. 301.....per doz.,	\$1.00	\$1.50
302....."	4.75	6.25
303....."	5.75	7.25
304....."	6.75	8.25
305....."	7.75	9.25
306....."	8.75	10.25
307....."	9.75	11.50
308....."	11.00	13.50
309....."	12.75	15.25
310....."	14.75	17.50

PATENT STOVE SAUCE PANS.

No.	With Retained Covers.	With Granite Covers.
No. 6.....per doz.,	\$3.00	
7....."	10.00	
8....."	12.50	
9....."	15.00	

BEADED STRONG SAUCE PANS.

No.	With Retained Covers.	With Granite Covers.
No. 18.....per doz.,	\$6.50	
20....."	7.50	
22....."	8.50	
24....."	9.50	
26....."	10.50	
28....."	12.50	
30....."	14.50	

EXTRA STRONG STRAIGHT SAUCE PANS.

No.	With Retained Covers.	With Granite Covers.
No. 10.....per doz.,	\$4.00	
12....."	5.00	
14....."	6.00	
16....."	7.00	
18....."	8.00	
20....."	9.00	
22....."	10.50	
24....."	12.00	
26....."	13.50	
28....."	15.00	
30....."	17.50	
32....."	20.00	
36....."	25.00	

PATENT COVERED "WINDSOR" SAUCE PANS.

No.	With Retained Covers.	With Granite Covers.
No. 12.....per doz.,	\$1.50	\$4.00
14....."	5.50	7.00
16....."	6.50	8.00
18....."	7.50	9.00
20....."	8.50	10.00
22....."	9.50	11.00
24....."	10.50	12.00
26....."	12.00	14.00
28....."	13.50	16.00
30....."	15.00	18.00

PATENT COVERED "WINDSOR" SAUCE PANS.

With Rings.

No.	With Retained Covers.	With Granite Covers.
No. 12.....per doz.,	\$5.50	\$7.00
14....."	7.00	8.50
16....."	8.50	10.00
18....."	10.00	11.50
20....."	11.00	12.50
22....."	12.00	13.50
24....."	13.50	15.00
26....."	15.00	17.00
28....."	17.50	20.00
30....."	19.50	22.50

DEEP STEW PANS.

No.	With Retained Covers.	With Granite Covers.
No. 14.....per doz.,	\$3.50	\$4.50
16....."	4.00	5.00
18....."	4.50	6.00
20....."	5.00	7.00
22....."	5.50	8.00
24....."	6.50	9.00
26....."	7.50	10.00
28....."	8.50	12.50
30....."	9.50	15.00

SHALLOW STEW PANS.

No.	With Retained Covers.	With Granite Covers.
No. 3.....per doz.,	\$3.25	
4....."	4.00	
5....."	4.75	
6....."	5.25	

ROUND CORNERED STOVE PANS.

No.	With Retained Covers.	With Granite Covers.
No. 1.....per doz.,	\$4.00	
2....."	4.50	
3....."	5.00	
4....."	5.50	
6....."	8.00	
7....."	8.50	
8....."	9.00	
9....."	11.00	
10....."	12.00	
11....."	9.00	
12....."	10.00	

SEAMLESS OBLONG STOVE PANS.

No.	With Retained Covers.	With Granite Covers.
No. 100.....per doz.,	\$3.00	
200....."	6.50	
300....."	7.00	
400....."	9.00	
450....."	10.00	
500....."	12.50	

SEAMLESS SQUARE STOVE PANS.

No.	With Retained Covers.	With Granite Covers.
No. 111.....per doz.,	\$8.00	
113....."	9.00	
114....."	10.00	
115....."	11.00	
116....."	13.00	
118....."	15.00	

TART PANS.

No.	With Retained Covers.	With Granite Covers.
No. 02.....per doz.,	\$2.00	

PERFORATED PERCOLATORS.

No.	With Retained Covers.	With Granite Covers.
No. 30.....per doz.,	\$5.00	

"CONTINENTAL" PITCHERS.

No.	With Retained Covers.	With Granite Covers.
No. 804.....per doz.,	\$10.00	

CONVEX WATER PITCHERS.

No.	With Retained Covers.	With Granite Covers.
No. 401.....per doz.,	\$8.00	
402....."	0.25	
403....."	10.75	
404....."	12.00	
405....."	13.25	
501....."	8.00	
502....."	9.25	
503....."	10.75	
504....."	12.00	
505....."	13.25	

GEM WATER PITCHERS.

No.	With Retained Covers.	With Granite Covers.
No. 114.....per doz.,	\$8.00	
32....."	10.00	
58....."	14.00	

SEAMLESS WATER PITCHERS.

No.	With Retained Covers.	With Granite Covers.
No. 100.....per doz.,	\$8.00	
200....."	10.00	
300....."	12.00	
400....."	14.00	

"FUNNEL LIP" SEAMLESS PITCHERS.

No.	With Retained Covers.	With Granite Covers.
No. 902.....per doz.,	\$20.00	

PEERLESS PITCHERS AND BOWLS.

No.	With Retained Covers.	With Granite Covers.
No. 10.....per doz.,	\$20.00	

WASH WATER PITCHERS.

No.	With Retained Covers.	With Granite Covers.
No. 1.....per doz.,	\$12.50	
2....."	15.00	

PEERLESS WATER PITCHERS.

No.	With Retained Covers.	With Granite Covers.
No. 12.....per doz.,	\$10.00	
13....."	12.50	
14....."	15.00	

MOLASSES PITCHERS.

No.	With Retained Covers.	With Granite Covers.
No. 601, with granite cover, per doz.,	\$8.00	

FLAT BOTTOM DINNER PLATES.

No.	With Retained Covers.	With Granite Covers.
7 Inches.....per doz.,	\$2.00	
8 "....."	2.25	
9 "....."	3.00	
10 "....."	3.25	

ROUND BOTTOM DINNER PLATES.

No.	With Retained Covers.	With Granite Covers.
No. 24.....per doz.,	\$3.00	

OVAL SHIRRED EGG PLATES.

No.	With Retained Covers.	With Granite Covers.
No. 1.....per doz.,	\$1.50	
2....."	2.00	
3....."	2.50	
4....."	3.00	

LETTERED PLATES.

No.	With Retained Covers.	With Granite Covers.
6 1/4 Inches.....per doz.,	\$1.50	

PIE PLATES.

No.	With Retained Covers.	With Granite Covers.
7 Inches.....per doz.,	\$1.75	
8 "....."	2.00	
9 "....."	2.25	
10 "....."	2.75	
11 "....."	3.25	

EXTRA DEEP PIE PLATES.

No.	With Retained Covers.	With Granite Covers.
9 Inches.....per doz.,	2.50	
10 "....."	3.00	
11 "....."	3.50	
12 "....."	4.00	

OBLONG PIE PLATES.

No.	With Retained Covers.	With Granite Covers.
8 1/2 x 12 1/4 full sheet.....per doz.,	\$5.00	

SOUP PLATES.

No.	With Retained Covers.	With Granite Covers.
9 x 1 1/4 Inches.....per doz.,	\$3.00	

BEADED SOUP PLATES.

No.	With Retained Covers.	With Granite Covers.
9 x 1 1/4 Inches.....per doz.,	\$3.25	

"WINDSOR" TEA OR COFFEE POTS.

No.	With Retained Covers.	With Granite Covers.
No. 102.....per doz.,	\$10.00	
103....."	15.00	
104....."	15.00	
105....."	17.50	
106....."	20.00	

"BELLE" TEA POTS.

No.	With Retained Covers.	With Granite Covers.
No. 100.....per doz.,	\$11.00	\$12.00
200....."	12.00	13.00
300....."	14.00	15.00
400....."	16.00	17.00
500....."	18.00	19.00

"ACME" TEA POTS.

No.	With Retained Covers.	With Granite Covers.
No. 1000.....per doz.,	\$8.25	\$9.25
1010....."	10.00	11.00
1020....."	11.75	12.75
1030....."	13.25	14.25
1040....."	15.00	16.00
1050....."	16.75	17.75

"ACME" COFFEE POTS.

No.	With Retained Covers.	With Granite Covers.
No. 1005.....per doz.,	\$8.25	\$9.25
1015....."	10.00	11.00
1025....."	11.75	12.75
1035....."	13.25	14.25
1045....."	15.00	16.00
1055....."	16.75	17.75

IMPROVED TEA POTS.

No.	With Retained Covers.	With Granite Covers.
No. 00.....per doz.,	\$7.00	\$7.50
01....."	7.50	8.00
02....."	8.00	8.50
03....."	9.00	9.50
04....."	10.00	10.50
05....."	11.00	11.50
06....."	12.00	12.50
07....."	13.00	13.50
08....."	14.00	14.50
09....."	15.00	15.50

IMPROVED LIPPED COFFEE POTS.

No.	With Retained Covers.	With Granite Covers.
No. 2 1/2.....per doz.,	\$7.50	\$8.50
3....."	8.00	9.00
4....."	9.00	10.00
5....."	10.00	11.00
6....."	11.00	12.00
7....."	12.00	13.00
8....."	13.00	14.00
9....."	14.00	15.00

"PEKIN" TEA POTS.

No.	With Retained Covers.	With Granite Covers.
No. 110.....per doz.,	\$14.00	
120....."	16.00	
No. 210.....per doz.,	\$24.00	
220....."	26.00	

"ST. LOUIS" SEAMLESS STRAIGHT COVERED SAUCE POTS.

No.	With Retained Covers.	With Granite Covers.
No. 5.....per doz.,	\$3.75	\$4.25
10....."	4.50	5.25
20....."	5.00	6.50
30....."	6.00	7.25
40....."	7.50	8.75
60....."	9.00	10.50
80....."	11.00	13.00
100....."	13.00	15.00

"ROYAL" COVERED SEAMLESS SAUCE POTS.

No.

REDUCED PRICE LIST GRANITE IRONWARE.

Discount 25 per cent.

SEAMLESS COVERED STOVE POTS.

Flat Bottom.	
No. 706.....	per doz., \$17.50
707.....	" 20.00
708.....	" 25.00
709.....	" 30.00

BREAD RAISERS.

With Retinned Covers.		With Granite Covers.	
10 Quarts....	per doz., \$20.00	10 Quarts....	per doz., \$26.00
14 ".....	" 26.00	14 ".....	" 32.00
17 ".....	" 32.00	17 ".....	" 38.00
21 ".....	" 38.00	21 ".....	" 44.00

SAUCERS.

No. 0.....	per doz., \$1.00
1.....	" 1.80
1½.....	" 2.00
2.....	" 2.20
3.....	" 2.00

THUMB SCOOPS.

No. 1.....	per doz., \$1.50
2.....	" 2.00

GROCERS' SCOOPS.

No. 3.....	per doz., \$4.75
4.....	" 5.25
5.....	" 6.75

COVERED GROCERS' SCOOPS.

No. 30.....	per doz., \$6.00
40.....	" 7.25
50.....	" 9.25

CONFECTIONERS' OR FAMILY SCOOPS.

No. 202.....	per doz., \$4.50
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No. 203.....	per doz., \$1.50
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CONFECTIONERS' THUMB SCOOPS.

No. 100.....	per doz., \$1.75
200.....	" 2.50

FLAT SKIMMERS.

Flat Handle.	
No. 9.....	per doz., \$1.80
10.....	" 2.00
11.....	" 2.20
12.....	" 2.40
14.....	" 2.80
15.....	" 3.00

STOVE SKILLET'S.

No. 6.....	per doz., \$5.00
7.....	" 5.50
8.....	" 6.50
9.....	" 7.50

SPITTOONS.

No. 1.....	per doz., \$10.00
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SPITTOONS.

No. 2.....	per doz., \$9.25
3.....	" 6.75
20.....	" 10.00
30.....	" 12.00

BASTING SPOONS.

10 Inches.....	per doz., \$1.50
12 ".....	" 1.75
14 ".....	" 1.90
16 ".....	" 2.00
18 ".....	" 2.50
20 ".....	" 3.00

OYSTER STANDS.

Per doz.....	\$15.00
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FLOUR, SUGAR, OR LARD STANDS.

No. 1.....	per doz., \$18.00
2.....	" 21.00
3.....	" 34.00

STEAMERS.

No. 6.....	per doz., \$12.00
7.....	" 14.00
8.....	" 16.00

SEAMLESS TEA STEEPERS.

No. 1.....	per doz., \$6.00
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SOUP OR GRAVY STRAINERS.

Fine Perforated Bottoms.	
No. 12.....	per doz., \$3.25
14.....	" 4.00
16.....	" 4.75

SOUP OR GRAVY STRAINERS.

Coarse Perforated Bottoms.	
No. 22.....	per doz., \$3.25
24.....	" 4.00
26.....	" 4.75

TORTUMAS.

No. 25.....	per doz., \$2.50
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OBLONG BREAD TRAYS.

No. 1.....	per doz., \$5.50
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CHILD'S TRAY.

No. 15.....	per doz., 3.00
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OBLONG TRAYS.

13 Inches.....	per doz., \$5.00
15 ".....	" 6.50
18 ".....	" 8.00

OVAL TRAYS.

10½ Inches.....	per doz., \$4.00
12 ".....	" 5.00
14 ".....	" 6.00
16 ".....	" 8.00
18 ".....	" 10.00
20 ".....	" 12.00
22 ".....	" 15.00
24 ".....	" 20.00

ROUND TRAYS.

10 Inches.....	per doz., \$3.00
12 ".....	" 4.50

TUMBLERS.

½ Pint.....	per doz., \$2.00
1 ".....	" 2.50

OVAL SOUP TUREENS.

Wood Handles.	
No. 20.....	per doz., \$24.00
30.....	" 32.00
40.....	" 40.00
50.....	" 48.00
60.....	" 56.00

With Foot and Wood Handles.

No. 120.....	per doz., \$28.00
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COFFEE URN OR SOUP STOCK POTS.

With Retinned Covers.		With Granite Covers.	
No. 6.....	each, \$1.50	No. 6.....	each, \$2.25
12.....	" 2.25	12.....	" 3.00
18.....	" 3.00	18.....	" 3.75

GRANITE TOILET WARE.

WATER CARRIERS.

No. 1.....	each, \$2.00
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SLOP JARS.

No. 1.....	each, \$2.00
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OVAL FOOT TUBS.

No. 1.....	per doz., \$18.00
2.....	" 22.00
3.....	" 26.00
No. 1 Set, Complete.....	\$5.50

GRANITE WINDSOR TOILET WARE.

"WINDSOR" WATER CARRIERS.

No. 20.....	each, \$3.00
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"WINDSOR" SLOP JARS.

No. 20.....	each, \$3.00
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"WINDSOR" FOOT TUBS.

No. 20.....	each, \$2.50
" Windsor" Set, No. 20, } Complete, }	\$ 5.50

GRANITE TOILET WARE.

WATER CARRIERS.

No. 23.....	each, \$2.50
40.....	" 2.50

SLOP JARS.

No. 30.....	each, \$3.00
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With Ball.

No. 40.....	each, \$3.25
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FOOT TUBS.

No. 30.....	Seamless, each, \$1.75
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Seamless, with Foot.

No. 40.....	each, \$2.25
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No. 30 Set, Complete.....	\$7.25
No. 40 Set, Complete.....	\$ 8.00



This Trade=Mark

—ON—

Each and Every Piece.

ST. LOUIS STAMPING CO.,

ST. LOUIS, MO.

—MANUFACTURERS—

Granite Ironware, "Imperial" Enamelled Steel Ware, and Dripping Pans.
Fine Black and Galvanized Sheet Iron.
Tin and Terne Plates.

Branch Houses: NEW YORK. CHICAGO. BOSTON.

STANDARD LIST

"IMPERIAL" ENAMELLED STEEL WARE

Discount 25 per cent.

"ACME" IMPROVED COFFEE BIGGINS.

No. 201.....	per doz., \$10.80
201½.....	" 12.40
202.....	" 14.00
203.....	" 15.60
204.....	" 17.20
205.....	" 18.80
100.....	" 7.00
101½.....	" 8.80
102.....	" 10.00
103.....	" 11.80
104.....	" 13.20
105.....	" 15.20

"BELLE" COFFEE BIGGINS.

No. 150.....	per doz., \$10.00
250.....	" 12.00
350.....	" 14.00
450.....	" 16.00
550.....	" 18.00

"IMPROVED" COFFEE BIGGINS.

No. 0.....	per doz., \$1.40
01.....	" 7.00
00.....	" 7.00
010.....	" 8.80
020.....	" 10.00
030.....	" 11.60
010.....	" 13.20
050.....	" 15.20

ASPARAGUS AND CORN BOILERS.

No. 1, with Granite Covers, per doz.....	\$20.00
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HAM BOILERS.

No. 118.....	each, \$1.20
120.....	" 4.80

COFFEE BOILERS—PIT BOTTOM.

	With Retinned Covers.	With Granite Covers.
No. 6.....	per doz., \$12.80	\$13.60
7.....	" 14.40	15.20
8.....	" 16.00	17.80
9.....	" 18.20	20.80

COFFEE BOILERS—FLAT BOTTOM.

	With Retinned Covers.	With Granite Covers.
No. 050.....	per doz., \$9.80	\$10.40
055.....	" 11.20	12.00
60.....	" 12.80	13.60
70.....	" 14.40	15.20
80.....	" 16.00	17.60
90.....	" 18.20	20.80

MILK, RICE AND VEGETABLE BOILERS.

	With Retinned Covers.	With Granite Covers.
No. 14.....	per doz., \$8.00	\$8.80
16.....	" 10.00	10.80
18.....	" 12.00	13.20
20.....	" 14.00	15.20
22.....	" 16.00	17.20
24.....	" 18.00	19.60
26.....	" 20.00	22.00
28.....	" 22.00	24.00
36.....	" 30.00	32.00

SEAMLESS MILK, RICE AND VEGETABLE BOILERS.

	With Retinned Covers.	With Granite Covers.
No. 52.....	per doz., \$10.80	\$11.20
53.....	" 14.00	15.00
54.....	" 17.00	18.20
56.....	" 21.40	23.00

ENGLISH MIXING BOWLS.

No. 1.....	per doz., \$5.20
2.....	" 6.80
3.....	" 10.00
4.....	" 12.00
5.....	" 14.00

SEAMLESS BOWLS.

No. 9.....	per doz., \$1.40
10.....	" 1.80
12.....	" 2.20
14.....	" 2.60
16.....	" 2.80
18.....	" 3.40
20.....	" 4.20
22.....	" 4.80
24.....	" 5.60
26.....	" 6.40
28.....	" 7.60
30.....	" 8.80

SOUP BOWLS.

No. 125.....	per doz., \$2.20
150.....	" 2.20

SUGAR BOWLS.

No. 401.....	per doz., \$7.20
402.....	" 9.60

WASH BOWLS.

	With Patent Rings.
No. 24.....	per doz., \$2.80
26.....	" 3.20
28.....	" 3.60
30.....	" 4.40
32.....	" 5.20
34.....	" 6.00
36.....	" 6.80

WASH BOWLS.

	With Patent Rings.
No. 100.....	per doz., \$3.60*
200.....	" 4.40
300.....	" 5.60
400.....	" 7.00

FAMILY WASH BOWLS.

No. 104.....	per doz., \$1.40
105.....	" 4.80
106.....	" 6.00
107.....	" 7.60

BROILERS.

11 Inches.....	per doz., \$10.00
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BATTER BUCKETS.

4 Quarts.....	per doz., \$9.00
6 ".....	" 11.20
8 ".....	" 12.80

SEAMLESS COVERED BUCKETS.

No. 15.....	per doz., \$6.00
25.....	" 6.80
35.....	" 7.20
45.....	" 7.60
65.....	" 8.00
85.....	" 9.00
105.....	" 10.80
125.....	" 12.40
145.....	" 14.80
165.....	" 16.80

"ST. LOUIS" SEAMLESS STRAIGHT COVERED BUCKETS.

No. 50.....	per doz., \$3.00
150.....	" 3.60
250.....	" 4.00
350.....	" 4.80
450.....	" 6.00
650.....	" 7.20
850.....	" 8.80
1050.....	" 10.40

STRAIGHT SEAMED COVERED BUCKETS.

½ Quarts.....	per doz., \$2.20
1 ".....	" 3.00
1½ ".....	" 3.20
2 ".....	" 3.60
3 ".....	" 4.40
4 ".....	" 5.60
6 ".....	" 6.80
8 ".....	" 8.40
10 ".....	" 10.00
12 ".....	" 11.20

SLOP BUCKETS.

No. 12, with Retinned Covers, per doz.....	\$14.00
No. 12, with Granite Covers, per doz.....	18.00

SEAMLESS FLARING BUCKETS.

No. 20.....	per doz., \$6.00
30.....	" 6.40
40.....	" 6.80
50.....	" 7.20
60.....	" 7.60
80.....	" 8.40
100.....	" 9.60
120.....	" 10.80
160.....	" 12.80

SEAMLESS WATER BUCKETS.

No. 101.....	per doz., \$5.80
102.....	" 6.40
103.....	" 6.80
104.....	" 7.20
106.....	" 7.60
108.....	" 8.80
110.....	" 10.40
112.....	" 11.20
114.....	" 13.20
116.....	" 15.20

With Seamless Foot.

No. 206.....	per doz., \$8.40
208.....	" 9.00
210.....	" 10.80
212.....	" 12.00
214.....	" 14.00
216.....	" 16.00

CHAMBER CANDLESTICKS.

No. 25.....	per doz., \$2.60
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PATENT SAFETY CANDLESTICKS.

No. 35, without chimneys, per doz.....	\$4.00
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DINNER CARRIERS.

4 Sections.....	each, \$3.80
5 ".....	" 4.20

"ASYLUM" CHAMBERS.

No. 20.....	per doz., \$4.60
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CHAMBERS.

No. 1.....	per doz., \$6.00
1½.....	" 7.60
2.....	" 9.00
3.....	" 9.60

CHAMBER COVERS.

No. 1.....	per doz., \$2.00
1½.....	" 2.80
2.....	" 3.60
3.....	" 4.00

SAUCE PAN AND KETTLE COVERS.

	Retinned Covers.	Granite Covers.
No. 9.....	per doz., \$0.28	\$1.36
10.....	" .32	1.48
12.....	" .40	1.76
14.....	" .48	2.00
16.....	" .54	2.28
18.....	" .60	2.56
20.....	" .68	3.08
22.....	" .72	3.20
24.....	" .80	3.60
26.....	" .92	4.16
28.....	" 1.08	4.68
30.....	" 1.20	5.36
32.....	" 1.36	6.00
36.....	" 1.60	6.80

WINE COOLERS.

No. 2.....	per doz., \$8.00
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COLANDERS.

No. 104.....	per doz., \$1.80
25.....	" 5.60
30.....	" 6.40
407.....	" 8.00

BABY FOOD CUPS.

No. 01½.....	per doz., \$3.60
02.....	" 4.40

DRINKING CUPS.

No. 8.....	per doz., \$1.40
9.....	" 1.60
10.....	" 1.80
11.....	" 2.00
12.....	" 2.40

MEASURING CUPS.

No. 103.....	per doz., \$2.40
104.....	" 2.40

MINERS' CUPS.

No. 10.....	per doz., \$3.60
20.....	" 4.80

PIECED CUPS.

No. 1.....	per doz., \$1.40
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SPIT CUPS.

No. 10.....	per doz., \$3.40
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COVERED SPIT CUPS—PATENTED.

No. 15.....	per doz., \$4.60
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STRAIGHT CUPS.

No. 14.....	per doz., \$1.40
15.....	" 1.60
16.....	" 1.80
17.....	" 2.00
18.....	" 2.40

SEAMLESS STRAIGHT CUPS.

No. 0.....	per doz., \$1.40
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TEAMSTERS' CUPS.

No. 23.....	per doz., \$1.80
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COMMODOES.

No. 2.....	per doz., \$8.00
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CHILD'S COMMODOE.

No. 1.....	per doz., \$4.00
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CUSPADORES.

No. 1.....	per doz., \$8.80
2.....	" 6.40
4.....	" 6.40
5.....	" 7.20

COCOA SHAPED DIPPER.

No. 55.....	per doz., \$4.00
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With Improved Round Handles.

No. 055.....	per doz., \$3.40
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CUP DIPPER.

No. 10.....	per doz., \$2.20
11.....	" 2.80
12.....	" 3.20
13.....	" 3.80

EXTRA STRONG DIPPER.

No. 210.....	per doz., \$4.80
22.....	" 5.60
214.....	" 6.40
216.....	" 7.60

FLARING DIPPER.

No. 10.....	per doz., \$2.20
11.....	" 2.80
12.....	" 3.20
13.....	" 3.80
150.....	" 4.40

KITCHEN DIPPER.

No. 14.....	per doz., \$4.20
16.....	" 4.80

"WINDSOR" DIPPER.

No. 110.....	per doz., \$3.20
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112.....	" 4.40
114.....	" 5.40

IMPROVED CHAFING DISHES.

No. 103.....	per doz., \$19.20
203.....	" 22.40

OVAL MEAT DISHES.

12 Inches.....	per doz., \$4.80
14 ".....	" 6.40
16 ".....	" 8.00
18 ".....	" 10.00

OBLONG PUDDING DISHES.

No. 10.....	per doz., \$3.20
11.....	" 3.60
12.....	" 4.40
13.....	" 5.20
14.....	" 6.40
15.....	" 7.60

HANGING SOAP DISHES.

No. 65.....	per doz., \$2.40
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OBLONG SOAP DISHES.

No. 50.....	per doz., \$2.40
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COVERED OBLONG SOAP DISHES.

No. 55.....	per doz., \$3.80
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OVAL SOAP DISHES.

No. 40.....	per doz., \$2.40
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COVERED OVAL SOAP DISHES.

No. 45.....	per doz., \$3.60
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ROUND SOAP DISHES.

No. 1.....	per doz., \$2.00
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WALL SOAP DISHES.

STANDARD LIST

"IMPERIAL" ENAMELLED STEEL WARE

Discount 25 per cent.

PATENT COVERED "CLIMAX" KETTLES.

With Patent Asbestos Bottoms.

No.	per doz.	With Retained Granite Covers.	With Granite Covers.
No. 901	per doz.	\$4.80	\$8.00
902	"	5.60	8.80
903	"	7.20	8.40
904	"	8.80	10.00
906	"	10.40	11.60
908	"	12.00	13.20

SEAMLESS COVERED CONVEX KETTLES.

No.	per doz.	With Retained Granite Covers.	With Granite Covers.
No. 1/2	per doz.	\$3.20	\$4.40
1	"	4.80	6.00
2	"	6.40	8.00
3	"	8.00	10.00
4	"	10.40	11.60
6	"	12.80	14.00
8	"	16.00	17.20
12	"	20.00	21.60
14	"	22.00	24.00
18	"	24.00	26.00

ROUND DINNER KETTLES.

No. 2, with tin top covers, per doz.	\$8.60
3, with Gran. top cov.,	12.80

OVAL DINNER KETTLES.

No. 0	per doz.	\$16.60
1	"	18.80

SEAMLESS OVAL DINNER KETTLES.

No. 101	per doz.	\$16.00
111	"	18.20

COVERED FISH KETTLES.

16 Inches	per doz.	\$2.20
18	"	2.80
20	"	3.20
22	"	3.80
24	"	4.20
No. 016	"	2.20
018	"	2.80
020	"	3.20
022	"	3.80
024	"	4.20

EXTRA DEEP SEAMLESS FRUIT KETTLES.

2 Quarts	per doz.	\$8.00
3	"	6.40
4	"	6.80
6	"	7.20
8	"	7.60
10	"	8.40
12	"	9.60
16	"	10.80
24	"	12.80
	"	14.80

MILK KETTLES.

No. 71	per doz.	\$6.40
72	"	8.80
73	"	11.20
74	"	14.40
76	"	17.60

"BOSTON" MILK KETTLES.

No. 81	per doz.	\$6.40
82	"	8.80
83	"	11.20
84	"	14.40
86	"	17.60
81 1/2	"	7.00
82 1/2	"	9.40
83 1/2	"	11.80
84 1/2	"	15.00

DEEP PRESERVING KETTLES.

No. 16	per doz.	\$4.40
18	"	5.20
20	"	6.00
22	"	6.80
24	"	7.60
26	"	8.80
28	"	10.00
30	"	11.20
32	"	13.60
36	"	16.00

LIPPED PRESERVING KETTLES.

No. 14	per doz.	\$2.80
16	"	3.20
18	"	4.00
20	"	4.80
22	"	5.00
24	"	6.40
26	"	7.20
28	"	8.40
30	"	10.00
32	"	12.00
36	"	14.40
40	"	18.00
50	"	30.00

COVERED SEAMLESS "ROYAL" KETTLES.

No.	per doz.	With Retained Granite Covers.	With Granite Covers.
No. 401	per doz.	\$3.20	\$4.40
402	"	3.80	5.00
404	"	4.60	5.80
405	"	5.40	6.60
406	"	6.20	7.40
407	"	7.00	8.20
408	"	7.80	9.20
409	"	8.80	10.80
410	"	10.20	12.20
	"	11.80	14.00

PATENT COVERED "WINDSOR" KETTLES.

No.	per doz.	With Retained Granite Covers.	With Granite Covers.
No. 12	per doz.	\$3.60	\$4.80
14	"	4.40	5.60
16	"	5.20	6.40
18	"	6.00	7.20
20	"	6.80	8.00
22	"	7.60	8.80
24	"	8.40	9.60
26	"	9.60	11.20
28	"	10.80	12.80
30	"	12.00	14.40

PATENT STOVE KETTLES.

No. 6	per doz.	\$6.40
7	"	8.00
8	"	10.00
9	"	12.00

TEA KETTLES.

No. 6	per doz.	12.80
7	"	15.00
8	"	17.20
9	"	20.40
20	"	8.40
30	"	9.20
40	"	10.00
50	"	11.20
60	"	12.80
70	"	15.00
80	"	17.20
90	"	20.40
100	"	24.60
31 1/2	"	11.20
32	"	12.80
33	"	15.20
35	"	16.80
36	"	21.40
36	"	25.60

"ROYAL" TEA KETTLES.

No. 60	per doz.	\$12.80
70	"	15.20
80	"	18.40
90	"	22.40
100	"	25.60

TEA KETTLES.

No. 16 1/2	per doz.	\$10.00
18 1/2	"	11.20
20 1/2	"	12.80
22 1/2	"	15.00
24 1/2	"	17.20
26 1/2	"	20.40

SEAMLESS CONVEX TEA KETTLES.

No. 302	per doz.	\$12.00
303	"	14.00
304	"	16.00
306	"	20.00
308	"	24.00

"MIKADO" TEA KETTLES.

No. 204 Complete	per doz.	\$19.20
Stands and Lamps only	"	8.00
No. 104	"	11.20
103	"	12.80

FLAT HANDLE LADLES.

No.	per doz.	Solid.	Pierced.
No. 8	per doz.	\$1.60	\$1.60
9	"	1.70	1.76
10	"	1.82	1.82
11	"	2.08	2.08
12	"	2.24	2.24
13	"	2.40	2.40

SOUP LADLES.

No. 29	per doz.	\$2.00
38	"	2.00

SEAMED "STANDARD" MEASURES.

1/2 Pint	per doz.	\$2.80
1/4	"	3.20
1	"	4.00
1 Quart	"	5.20
2	"	6.40
4	"	9.60

SEAMLESS "STANDARD" MEASURES.

1/2 Pint	per doz.	\$3.20
1/4	"	3.60
1	"	4.40
1 Quart	"	6.00
2	"	8.00
4	"	10.80
No. 42	per doz.	\$3.80
43	"	4.40
44	"	5.20
45	"	6.00
46	"	6.80

DEEP OCTAGON CAKE MOULDS.

With Tube.

No. 720	per doz.	\$4.00
730	"	4.80
740	"	5.60
750	"	6.40
760	"	7.20

Without Tube.

No. 72	per doz.	\$3.20
73	"	4.00
74	"	4.80
75	"	5.60
76	"	6.40

SHALLOW OCTAGON CAKE MOULDS.

With Tube.

No. 201 1/2	per doz.	\$2.80
202	"	3.20
204	"	4.80

Without Tube.

No. 301 1/2	per doz.	\$2.40
302	"	2.80
303	"	3.60
304	"	4.40

TURBAN CAKE MOULDS.

With Tube.

No. 86	per doz.	\$4.00
87	"	4.80
88	"	5.60
89	"	6.40

Without Tube.

No. 6	per doz.	\$3.20
7	"	4.00
8	"	4.80
9	"	5.60

TURK'S HEAD CAKE MOULDS.

No. 61	per doz.	\$4.00
61 1/2	"	4.80
62	"	5.60
63	"	6.40
64	"	8.00

STRAIGHT TUBED CAKE MOULDS.

No. 101 1/2	per doz.	\$2.80
102	"	3.20
103	"	4.00
104	"	4.40

CHILDREN'S MUGS.

No. 3	per doz.	\$2.00
5	"	2.40

CHAMBER PAILS.

Seamless.

No. 3	per doz.	\$22.40
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Seamed.

No. 2	per doz.	\$18.00
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COMMODO ATTACHMENT FOR CHAMBER PAILS.

No. 10	per doz.	\$8.00
20	"	8.00

MILK PAILS—WITH STRAINER.

No. 7	per doz.	\$20.00
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LIPPED WATER PAILS.

No. 300	per doz.	\$14.00
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OVAL BAKE PANS.

No. 1	per doz.	\$4.00
2	"	4.80
3	"	6.00
4	"	7.20
5	"	9.60

ROUND BAKE PANS.

1/2 Quarts	per doz.	\$2.40
1	"	2.80
1 1/2	"	3.20
2	"	3.60
3	"	4.00
4	"	4.40
5	"	4.80
6	"	5.00
8	"	6.40
10	"	7.60

BED PANS.

No. 1	each	\$2.20
2	"	2.20

BIDET PANS.

No. 10	each	\$1.00
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PATENT CORN CAKE PANS.

No. 7	per doz.	\$7.60
7 1/2	"	10.80

JELLY CAKE PANS.

9 x 3 1/2 Inches	per doz.	\$1.80
10 x 1	"	2.20

MOUNTAIN CAKE PANS.

8 Inches	per doz.	\$2.20
9	"	2.80
10	"	3.00

DEEP OVAL CAKE PANS.

1 Quarts	per doz.	\$3.20
1 1/2	"	4.00
2	"	4.80
3	"	5.00
4	"	6.40
5	"	7.20
6	"	8.00

DEEP DISH PANS.

7 Quarts	per doz.	\$8.00
8	"	8.80
10	"	10.00
14	"	12.00
17	"	14.00
21	"	16.00
30	"	24.00

OVAL DISH PANS.

15 Quarts	per doz.	\$12.80
18	"	14.40
22	"	17.60

DUST PANS.

No. 10	per doz.	\$4.80
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EGG PANS.

No. 1.....	per doz.,	\$1.60
2.....	"	2.00
3.....	"	2.40
4.....	"	2.80
5.....	"	3.20
6.....	"	3.60
7.....	"	4.00
8.....	"	4.40
9.....	"	4.80

STANDARD LIST

"IMPERIAL" ENAMELLED STEEL WARE

Discount 25 per cent.

PATENT COVERED "CLIMAX" SAUCE PANS. With Patent Asbestos Bottom.			PATENT COVERED "WINDSOR" SAUCE PANS. With Rings.			PEERLESS WATER PITCHERS. Seamless.			"PEKIN" TEA POTS.		
No. 801.....	per doz.,	\$4.80	No. 12.....	per doz.,	\$4.40	No. 12.....	per doz.,	\$8.00	No. 110.....	per doz.,	\$11.20
802.....	"	5.60	14.....	"	5.80	13.....	"	10.00	120.....	"	12.80
803.....	"	7.20	16.....	"	6.80	14.....	"	12.00	With Nickel-Plated Lamp and Stand.		
804.....	"	8.80	18.....	"	8.00	MOLASSES PITCHERS.			No. 210.....	per doz.,	\$19.20
806.....	"	10.40	20.....	"	8.80	No. 601, with granite cover, per doz., \$4.80			220.....	"	20.80
808.....	"	12.00	22.....	"	9.60	FLAT BOTTOM DINNER PLATES.			"ST. LOUIS" SEAMLESS STRAIGHT COVERED SAUCE POTS.		
SEAMLESS COVERED CONVEX SAUCE PANS.			24.....	"	10.80	7 Inches..... per doz., \$1.60			With Side Handles.		
No. 1/4.....	per doz.,	\$3.20	26.....	"	12.40	8 "..... " 1.80			No. 5.....	per doz.,	\$3.00
1.....	"	4.80	28.....	"	14.00	9 "..... " 2.40			10.....	"	3.60
2.....	"	6.40	30.....	"	15.60	10 "..... " 2.60			20.....	"	4.00
3.....	"	8.80	DEEP STEW PANS.			ROUND BOTTOM DINNER PLATES.			30.....	"	4.80
4.....	"	10.40	No. 14.....	per doz.,	\$2.80	No. 24..... per doz., \$2.40			40.....	"	5.60
6.....	"	12.80	16.....	"	3.20	OVAL SHIRRED EGG PLATES.			60.....	"	7.20
8.....	"	16.00	18.....	"	3.60	No. 1..... per doz., \$1.20			80.....	"	8.80
LIPPED SAUCE PANS.			22.....	"	4.40	2..... " 1.60			100.....	"	10.40
No. 9.....	per doz.,	\$1.60	24.....	"	4.80	3..... " 2.00			"ROYAL" COVERED SEAMLESS SAUCE POTS.		
10.....	"	2.00	26.....	"	5.20	4..... " 2.40			No. 501.....	per doz.,	\$3.20
12.....	"	2.40	28.....	"	5.60	LETTERED PLATES.			502.....	"	3.80
14.....	"	2.80	30.....	"	6.00	6 1/4 Inches..... per doz., \$1.20			503.....	"	4.60
16.....	"	3.20	SHALLOW STEW PANS.			PIE PLATES.			504.....	"	5.40
18.....	"	4.00	No. 3.....	per doz.,	\$2.60	7 Inches..... per doz., \$1.40			505.....	"	6.20
20.....	"	4.80	4.....	"	3.20	8 "..... " 1.60			506.....	"	7.00
22.....	"	5.60	5.....	"	3.80	9 "..... " 1.80			507.....	"	7.80
24.....	"	6.40	6.....	"	4.20	10 "..... " 2.20			508.....	"	8.80
26.....	"	7.20	ROUND CORNERED STOVE PANS.			11 "..... " 2.60			509.....	"	10.20
28.....	"	8.40	No. 1.....	per doz.,	\$3.20	EXTRA DEEP PIE PLATES.			510.....	"	11.80
30.....	"	10.00	2.....	"	3.60	9 Inches..... per doz., \$2.00			COVERED SEAMLESS CONVEX SAUCE POTS.		
"ST. LOUIS" SEAMLESS STRAIGHT COVERED SAUCE PANS.			3.....	"	4.00	10 "..... " 2.40			No. 16.....	per doz.,	\$4.80
No. 50.....	per doz.,	\$3.00	4.....	"	4.40	11 "..... " 2.80			18.....	"	6.40
100.....	"	3.60	5.....	"	4.80	OBLONG PIE PLATES.			20.....	"	8.00
200.....	"	4.20	6.....	"	5.20	8 1/2 x 12 1/2 full sheet..... per doz., \$4.00			22.....	"	9.60
300.....	"	4.80	7.....	"	5.60	SOUP PLATES.			24.....	"	11.20
400.....	"	5.40	8.....	"	6.00	9 x 1 1/2 inches..... per doz. \$2.40			306.....	"	17.20
600.....	"	7.20	9.....	"	6.80	BEADED SOUP PLATES.			312.....	"	20.00
800.....	"	8.80	10.....	"	7.20	9 x 1 1/2 inches..... per doz., \$2.60			314.....	"	22.00
1000.....	"	10.40	11.....	"	7.60	"WINDSOR" TEA OR COFFEE POTS.			318.....	"	24.00
COVERED SEAMLESS "ROYAL" SAUCE PANS.			12.....	"	8.00	Granite Covers.			PATENT COVERED "WINDSOR" SAUCE POTS.		
No. 301.....	per doz.,	\$3.20	SEAMLESS OBLONG STOVE PANS.			No. 102..... per doz., \$8.00			With Retained Granite Covers.		
302.....	"	3.80	No. 100.....	per doz.,	\$4.80	103..... " 10.00			No. 112.....	per doz.,	\$3.60
303.....	"	4.40	200.....	"	5.20	104..... " 12.00			114.....	"	4.40
304.....	"	5.00	300.....	"	5.60	105..... " 14.00			116.....	"	5.20
305.....	"	5.60	400.....	"	6.00	106..... " 16.00			118.....	"	6.00
306.....	"	6.20	500.....	"	6.40	"BELLE" TEA POTS.			120.....	"	6.80
307.....	"	6.80	SEAMLESS SQUARE STOVE PANS.			With Retained Granite Covers.			122.....	"	7.60
308.....	"	7.40	No. 111.....	per doz.,	\$6.40	No. 100..... per doz., \$8.60			124.....	"	8.40
309.....	"	8.00	112.....	"	7.20	200..... " 9.60			126.....	"	9.60
310.....	"	8.80	113.....	"	8.00	300..... " 11.20			128.....	"	10.80
310.....	"	10.20	114.....	"	8.80	400..... " 12.80			130.....	"	12.00
310.....	"	11.80	115.....	"	9.60	500..... " 14.40			EXTRA STRONG STRAIGHT SAUCE POTS.		
PATENT STOVE SAUCE PANS.			118.....	"	12.00	"ACME" TEA POTS.			No. 16.....	per doz.,	\$5.60
No. 6.....	per doz.,	\$5.40	TART PANS.			With Retained Granite Covers.			18.....	"	6.40
7.....	"	8.00	No. 02.....	per doz.,	\$1.60	No. 100..... per doz., \$8.60			20.....	"	7.20
8.....	"	10.00	PERFORATED PERCOLATORS.			With Patent Enamelled Wood Handles and Retained Fluted Covers.			22.....	"	8.40
9.....	"	12.00	No. 30.....	per doz.,	\$4.00	With Retained Granite Covers.			24.....	"	9.60
BEADED STRONG SAUCE PANS.			No. 804.....	per doz.,	\$8.00	No. 1000..... per doz., \$8.60			26.....	"	10.80
No. 18.....	per doz.,	\$5.20	CONVEX WATER PITCHERS.			1010..... " 8.00			28.....	"	12.00
20.....	"	6.00	No. 401.....	per doz.,	\$6.40	1020..... " 9.40			30.....	"	14.00
22.....	"	6.80	402.....	"	7.40	1030..... " 10.60			32.....	"	16.00
24.....	"	7.60	403.....	"	8.00	1040..... " 12.00			36.....	"	20.00
26.....	"	8.40	404.....	"	8.80	1050..... " 13.40			HANDLED SEAMED STRAIGHT POTS.		
28.....	"	9.20	405.....	"	9.60	"ACME" COFFEE POTS.			No. 8.....	per doz.,	\$2.00
30.....	"	10.00	406.....	"	10.20	With Patent Enamelled Wood Handles and Retained Fluted Covers.			10.....	"	2.40
30.....	"	11.60	407.....	"	10.80	With Retained Granite Covers.			12.....	"	2.80
EXTRA STRONG STRAIGHT SAUCE PANS.			408.....	"	11.00	No. 1005..... per doz., \$6.60			14.....	"	3.60
No. 10.....	per doz.,	\$3.20	409.....	"	11.80	1015..... " 8.00			With Two Side Handles.		
12.....	"	4.00	410.....	"	12.00	1025..... " 9.40			No. 16.....	per doz.,	\$4.40
14.....	"	4.80	SEAMLESS WATER PITCHERS.			1035..... " 10.60			18.....	"	5.60
16.....	"	5.60	No. 100.....	per doz.,	\$8.40	1045..... " 12.00			20.....	"	6.40
18.....	"	6.40	200.....	"	8.80	1055..... " 13.40			22.....	"	8.00
20.....	"	7.20	300.....	"	9.60	IMPROVED TEA POTS.			24.....	"	9.60
22.....	"	8.40	400.....	"	11.20	No. 00..... per doz., \$5.60			26.....	"	11.20
24.....	"	9.60	"FUNNEL LIP" SEAMLESS PITCHERS.			01..... " 6.00			28.....	"	12.80
26.....	"	10.80	No. 902.....	per doz.,	\$16.00	0..... " 6.40			30.....	"	14.40
28.....	"	12.00	PEERLESS PITCHERS AND BOWLS.			10..... " 7.20			32.....	"	16.00
30.....	"	14.00	No. 10.....	per doz.,	\$16.00	20..... " 8.00			SEAMED COVERED STOVE POTS.		
32.....	"	16.00	20.....	"	20.00	30..... " 9.20			Pit Bottom.		
36.....	"	20.00	SEAMLESS WATER PITCHERS.			40..... " 10.40			No. 60.....	per doz.,	\$12.80
PATENT COVERED "WINDSOR" SAUCE PANS.			SEAMLESS WATER PITCHERS.			50..... " 12.00			70.....	"	14.40
No. 12.....	per doz.,	\$3.60	No. 100.....	per doz.,	\$8.40	IMPROVED LIPPED COFFEE POTS.			80.....	"	16.00
14.....	"	4.40	200.....	"	8.80	No. 2 1/2..... per doz., \$5.60			90.....	"	20.00
16.....	"	5.20	300.....	"	9.60	3..... " 6.00			SEAMLESS COVERED STOVE POTS.		
18.....	"	6.00	400.....	"	11.20	5..... " 7.20			Pit Bottom.		
20.....	"	6.80	PITCHERS AND BOWLS.			15..... " 8.00			No. 606.....	per doz.,	\$14.00
22.....	"	7.60	No. 1.....	per doz.,	\$16.00	25..... " 9.20			607.....	"	16.00
24.....	"	8.40	2.....	"	20.00	35..... " 10.00			608.....	"	30.00
26.....	"	9.60	WASH WATER PITCHERS.			45..... " 10.40			609.....	"	24.00
28.....	"	10.80	No. 1.....	per doz.,	\$10.00	55..... " 12.00			Continued on next page.		
30.....	"	12.00	2.....	"	12.00						

STANDARD LIST

"IMPERIAL" ENAMELLED STEEL WARE

Discount 25 per cent.

SEAMLESS COVERED STOVE POTS.

Flat Bottom.	
No. 706.....	per doz., \$14.00
707.....	" 16.00
708.....	" 20.00
709.....	" 24.00

BREAD RAISERS.

	With Retinned Covers.	With Granite Covers.
10 Quarts.....	per doz., \$16.00	\$20.80
14 ".....	" 20.80	25.60
17 ".....	" 25.60	30.40
21 ".....	" 30.40	35.20

SAUCERS.

No. 0.....	per doz., \$1.28
1.....	" 1.44
1 1/2.....	" 1.60
2.....	" 1.76
3.....	" 1.92

THUMB SCOOPS.

No. 1.....	per doz., \$1.20
2.....	" 1.60

GROCERS' SCOOPS.

No. 3.....	per doz., \$3.80
4.....	" 4.20
5.....	" 5.40

COVERED GROCERS' SCOOPS.

No. 30.....	per doz., \$4.80
40.....	" 5.80
50.....	" 7.40

CONFECTIONERS' OR FAMILY SCOOPS.

Round Edge or Bottom.	
No. 202.....	per doz., \$3.60
Square Edge and Flat Bottom.	
No. 203.....	per doz., \$3.60

CONFECTIONERS' THUMB SCOOPS.

Square Edge and Flat Bottom.	
No. 100.....	per doz., \$1.40
200.....	" 2.00

FLAT SKIMMERS.

Flat Handle.	
No. 9.....	per doz., \$1.44
10.....	" 1.60
11.....	" 1.76
12.....	" 1.92
14.....	" 2.24
15.....	" 2.40

STOVE SKILLETS.

No. 6.....	per doz., \$4.00
7.....	" 4.40
8.....	" 5.20
9.....	" 6.00

SPITTOONS.

Octagon Shape.	
No. 1.....	per doz., \$8.00

SPITTOONS.

No. 2.....	per doz., \$7.40
3.....	" 8.00
20.....	" 8.00
30.....	" 9.00

BASTING SPOONS.

10 Inches.....	per doz., \$1.20
12 ".....	" 1.40
14 ".....	" 1.52
16 ".....	" 1.60
18 ".....	" 2.00
20 ".....	" 2.40

OYSTER STANDS.

Per doz.....	\$12.00
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FLOUR, SUGAR, OR LARD STANDS.

No. 1.....	per doz., \$14.40
2.....	" 20.80
3.....	" 27.20

STEAMERS.

No. 6.....	per doz., \$9.60
7.....	" 11.20
8.....	" 12.80

SEAMLESS TEA STEEPERS.

No. 1.....	per doz., \$4.80
------------	------------------

SOUP OR GRAVY STRAINERS.

Fine Perforated Bottoms.	
No. 12.....	per doz., \$2.60
14.....	" 3.20
16.....	" 3.80

SOUP OR GRAVY STRAINERS.

Coarse Perforated Bottoms.	
No. 22.....	per doz., \$2.60
24.....	" 3.20
26.....	" 3.80

TORTUMAS.

Army Drinking Cups.	
No. 25.....	per doz., \$2.00

OBLONG BREAD TRAYS.

No. 1.....	per doz., \$4.40
------------	------------------

CHILD'S TRAY.

No. 15.....	per doz., 7.20
-------------	----------------

OBLONG TRAYS.

13 Inches.....	per doz., \$4.00
15 ".....	" 5.20
18 ".....	" 6.40

OVAL TRAYS.

10 1/2 Inches.....	per doz., \$7.20
12 ".....	" 4.00
14 ".....	" 4.80
16 ".....	" 6.40
18 ".....	" 8.00
20 ".....	" 9.60
22 ".....	" 12.00
24 ".....	" 16.00

ROUND TRAYS.

10 Inches.....	per doz., \$2.40
12 ".....	" 3.60

TUMBLERS.

1/2 Pint.....	per doz., \$1.60
1 ".....	" 2.00

OVAL SOUP TUREENS.

Wood Handles.	
No. 20.....	per doz., \$10.20
30.....	" 25.60
40.....	" 32.00
50.....	" 38.40
60.....	" 44.80

With Foot and Wood Handles.

No. 120.....	per doz., \$22.40
--------------	-------------------

COFFEE URN OR SOUP STOCK POTS.

	With Retinned Covers.	With Granite Covers.
No. 6.....	each, \$1.20	\$1.80
12.....	" 1.80	2.40
18.....	" 2.40	3.00

GRANITE TOILET WARE. WATER CARRIERS.

No. 1.....	each, \$1.60
------------	--------------

SLOP JARS.

No. 1.....	each, \$1.60
------------	--------------

OVAL FOOT TUBS.

No. 1.....	per doz., \$14.40
2.....	" 17.60
3.....	" 20.80
No. 1 Set, Complete.....	4.40

GRANITE WINDSOR TOILET WARE.

"WINDSOR" WATER CARRIERS.

No. 20.....	each, \$2.40
-------------	--------------

"WINDSOR" SLOP JARS.

No. 20.....	each, \$2.40
-------------	--------------

"WINDSOR" FOOT TUBS.

Seamless.	
No. 20.....	each, \$2.00
" Windsor" Set, No. 20, Complete, 6.80	

GRANITE TOILET WARE. WATER CARRIERS.

No. 30.....	each, \$2.00
40.....	" 2.00

SLOP JARS.

No. 30.....	each, \$2.40
-------------	--------------

With Ball.

No. 40.....	each, \$2.60
-------------	--------------

FOOT TUBS.

Seamless	
No. 30.....	each, \$1.40

Seamless, with Foot.

No. 40.....	each, \$1.80
No. 30 Set, Complete.....	\$5.80
No. 40 Set, Complete.....	6.40



This Trade=Mark

ON

Each and Every Piece.

ST. LOUIS STAMPING CO.,

ST. LOUIS, MO.

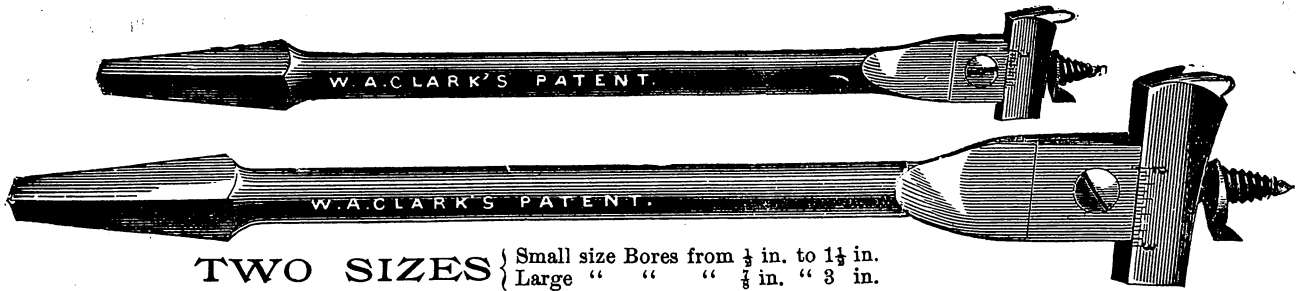
MANUFACTURERS

Granite Ironware, "Imperial" Enamelled Steel Ware, and Dripping Pans.
Fine Black and Galvanized Sheet Iron.

Tin and Terne Plates.

Branch Houses: NEW YORK. CHICAGO. BOSTON.

THE WM. A. CLARK PATENT EXPANSIVE BIT.



TWO SIZES { Small size Bores from $\frac{1}{2}$ in. to $1\frac{1}{2}$ in.
Large " " " $\frac{3}{4}$ in. " 3 in.

SPECIAL CUTTERS: No. 5—For Large Bit, Bores from 3 in. to 4 in. No. 6—For Large Bit, Bores from 4 in. to 5 in.

Stock and workmanship superior to all others. Every part interchangeable.

Quality guaranteed. For sale by all Hardware Dealers.

Manufactured by **R. H. BROWN & CO.,** New Haven, Conn

*You take no risk on the quality
We have only the best!*



**Sand
Papers**
IN
Reams and Roll

Flint Paper
Garnet Paper
Emery Paper
Emery Cloth

HAIR FELTING for covering Boilers, Steam and Water Pipe, and lining Refrigerators.

BAEDER, ADAMSON & CO.

730 MARKET STREET, PHILADELPHIA;
67 BECKMAN STREET, NEW YORK.
145 MILK STREET, BOSTON;
182 LAKE STREET, CHICAGO.

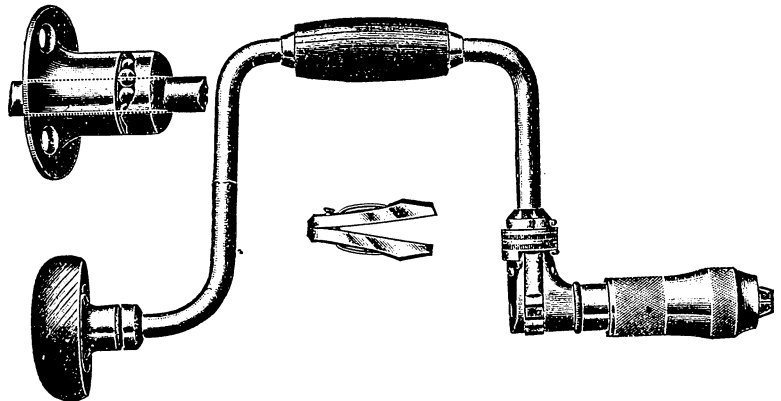
Palmer's Common Sense Frame Pulley.



MANUFACTURED BY

PALMER HARDWARE MFG. CO., Troy, N. Y.

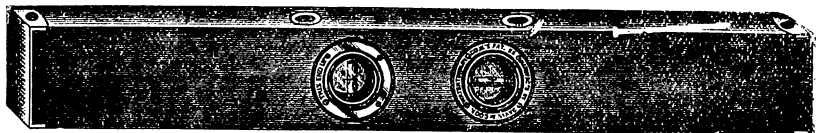
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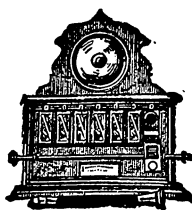


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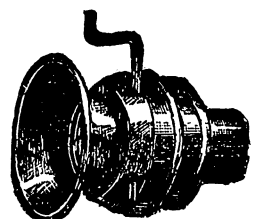


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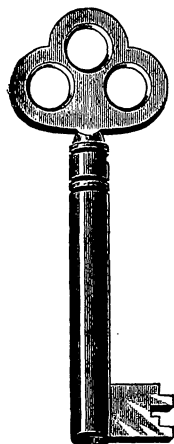
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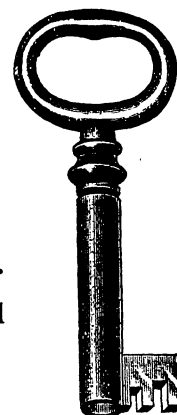


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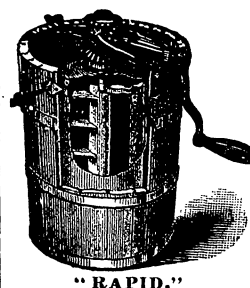
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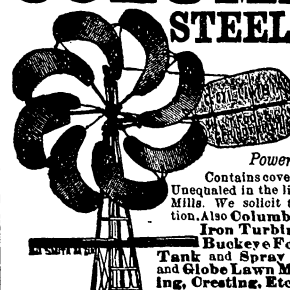
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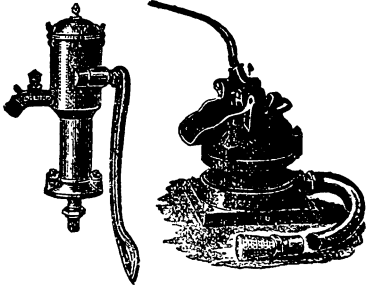
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Fig. 381.

Fig. 145.



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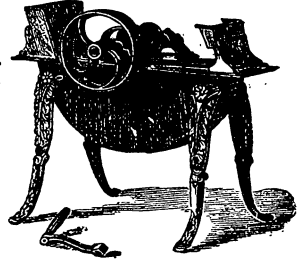
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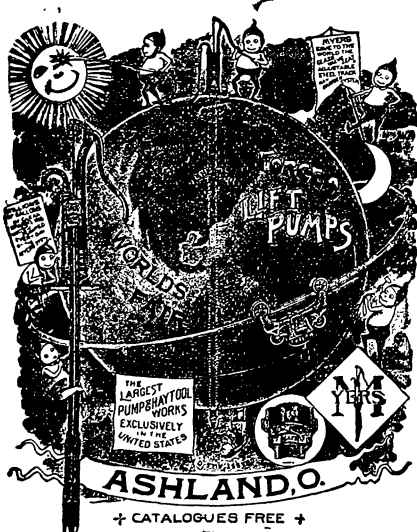
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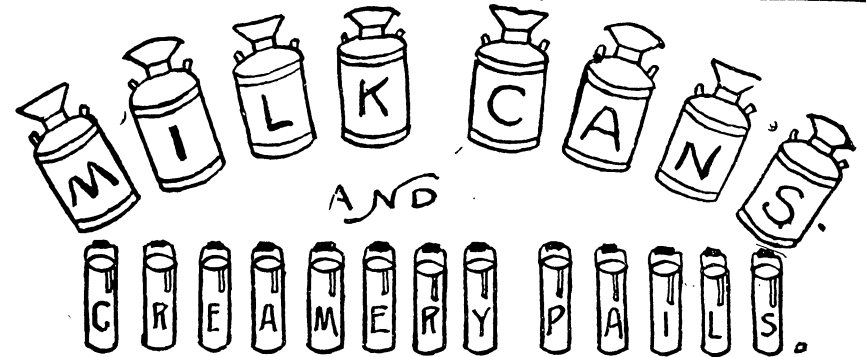
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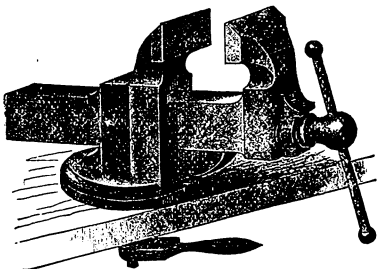
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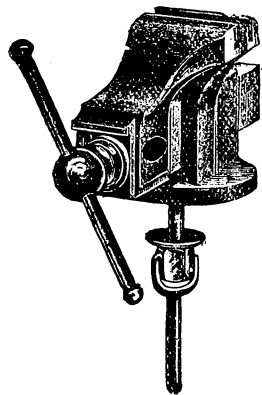


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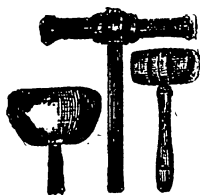
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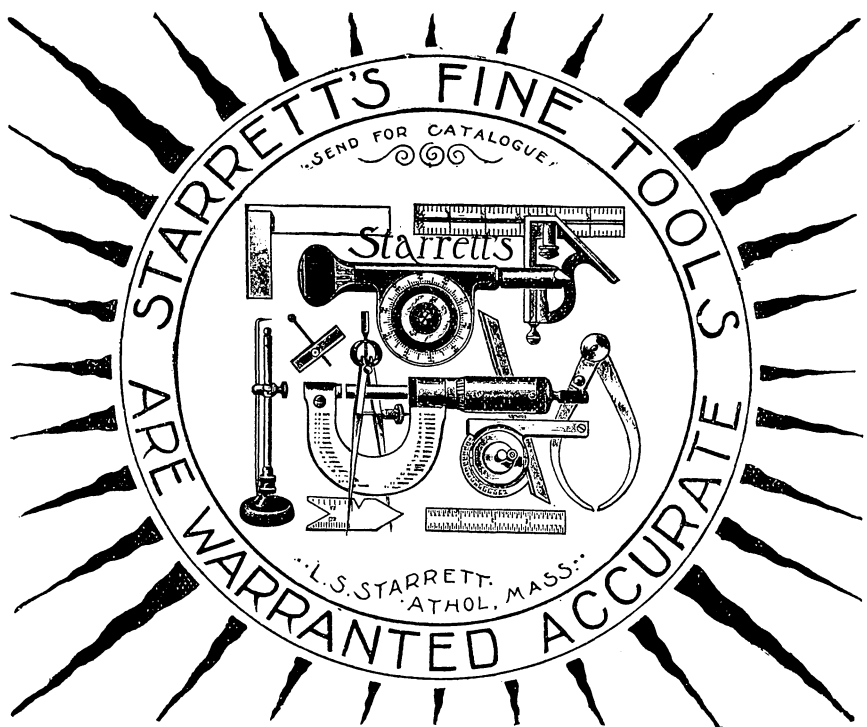
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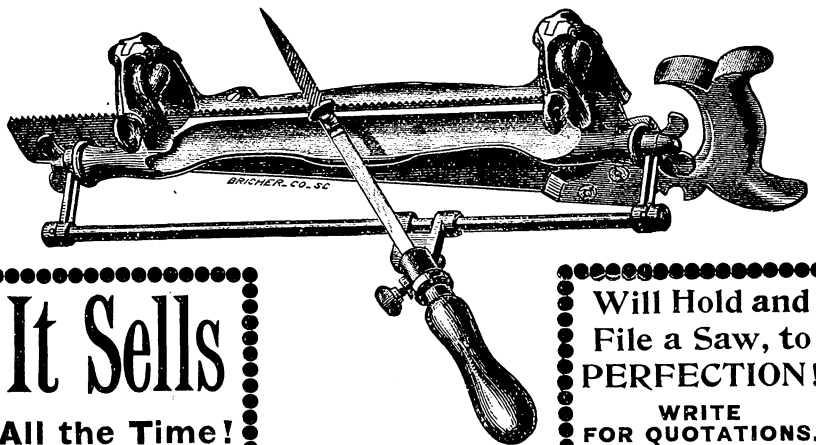
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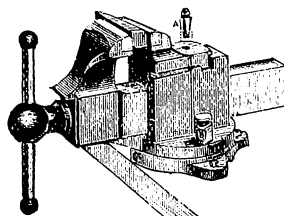
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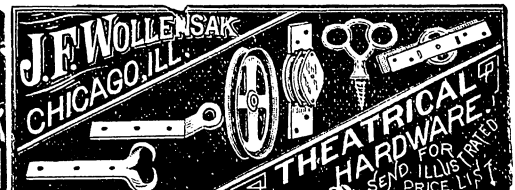
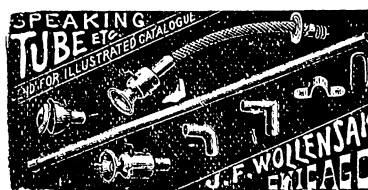
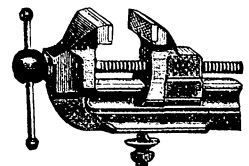
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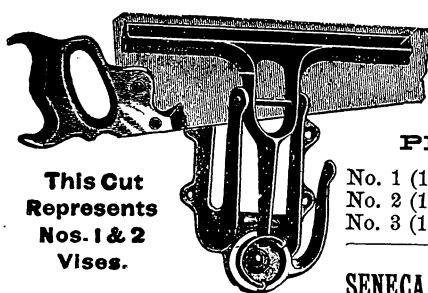
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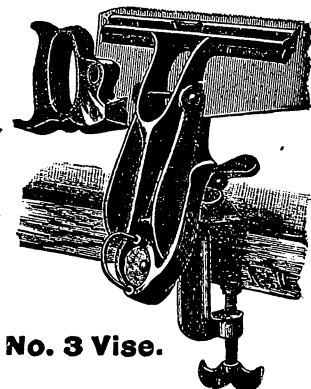
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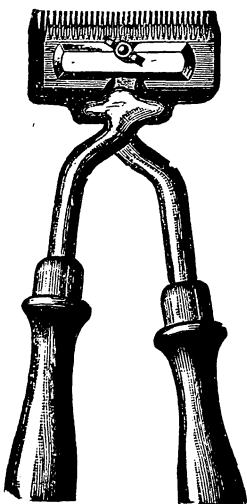
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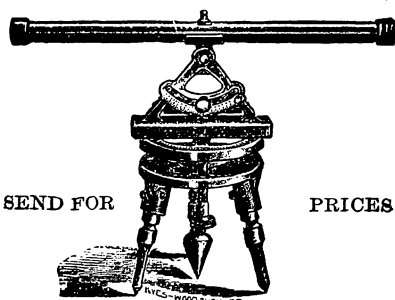
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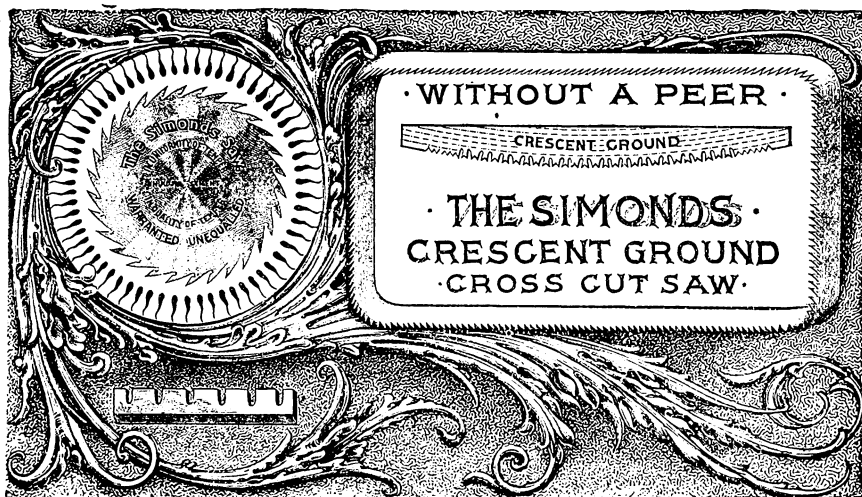
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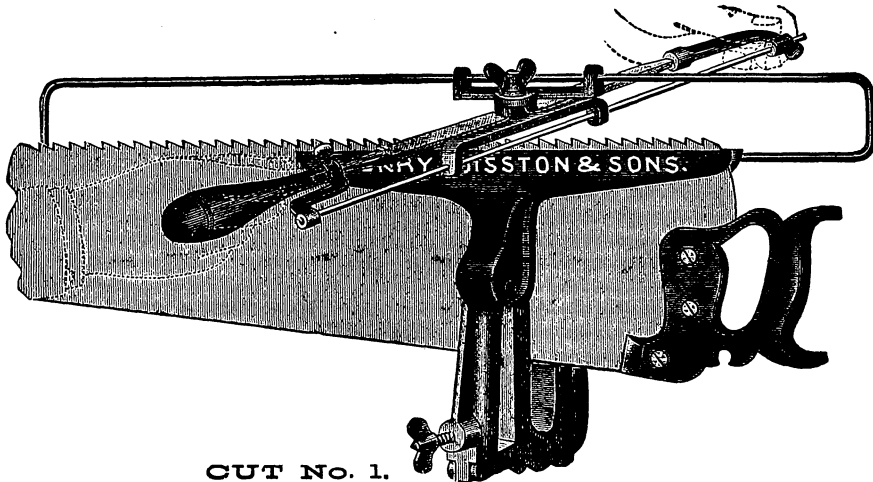
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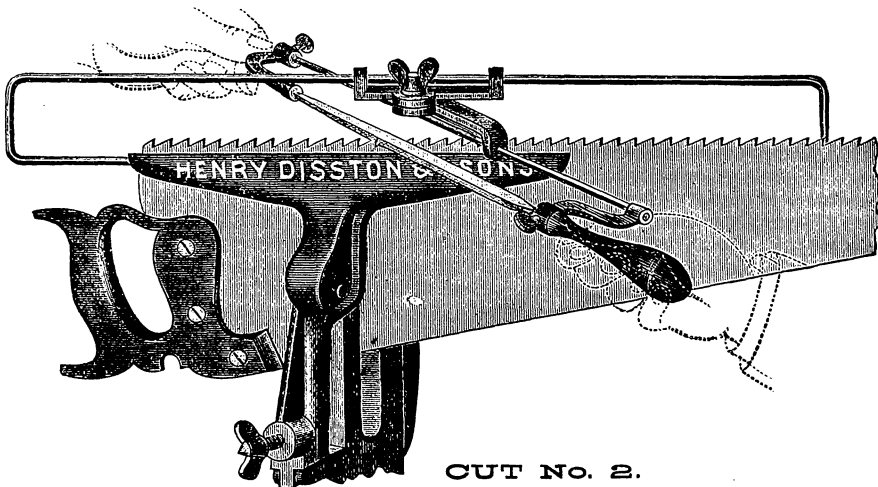
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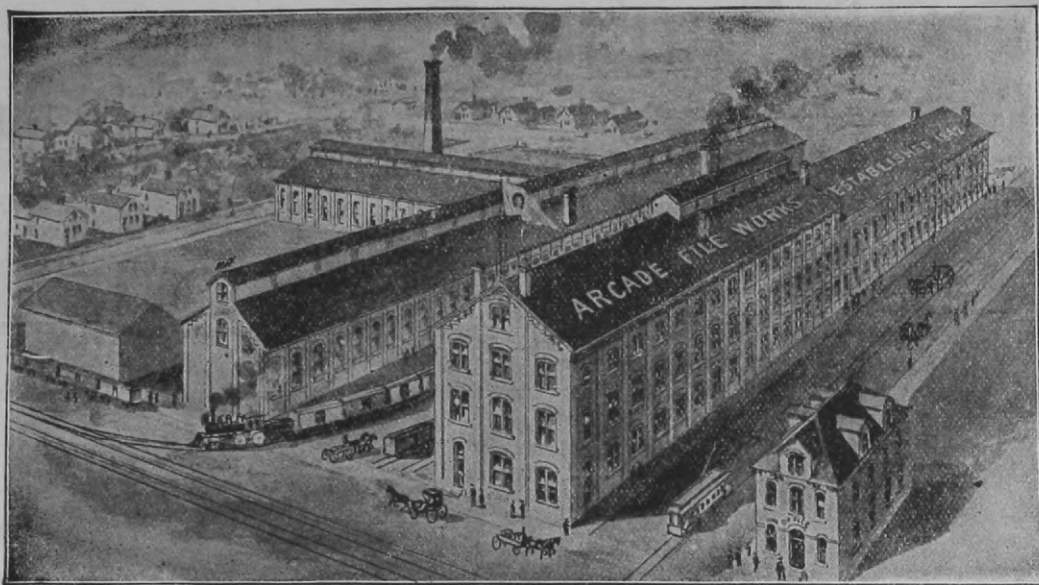
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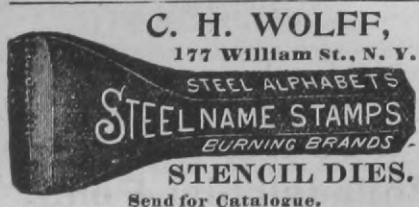
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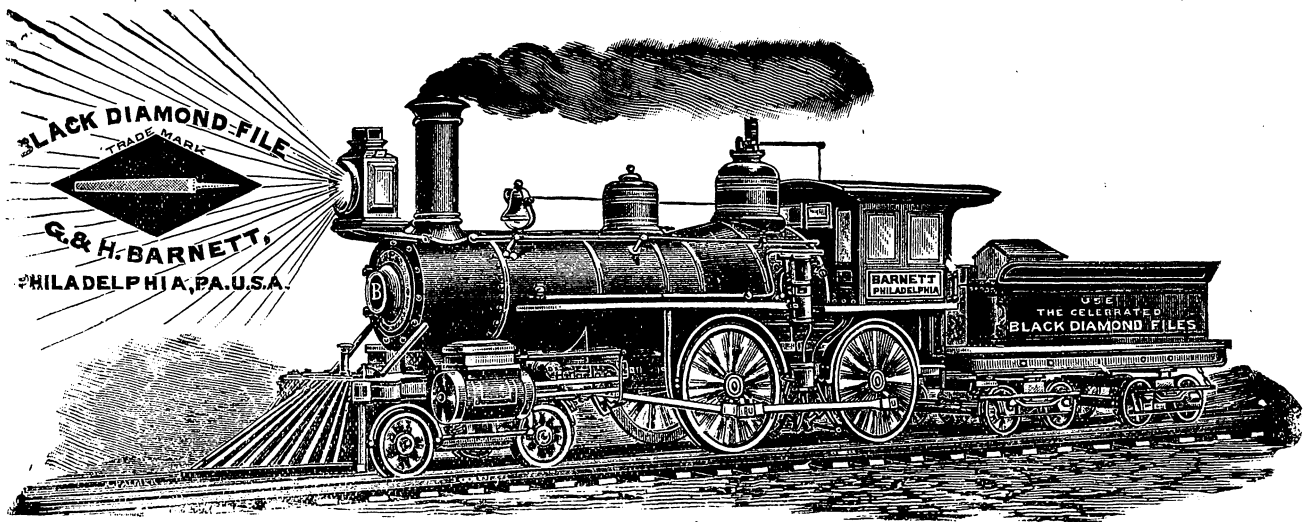
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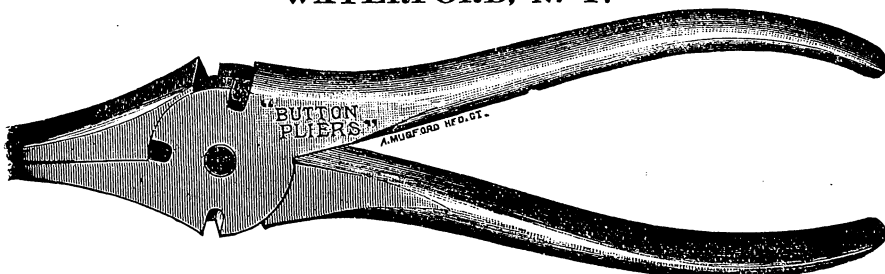
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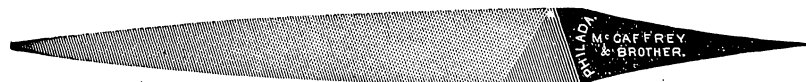


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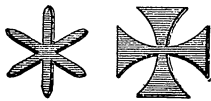
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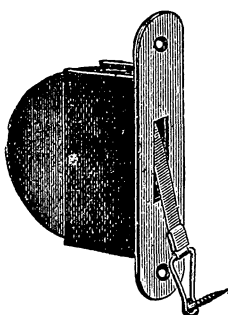
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Shipments in paper lined barrels.

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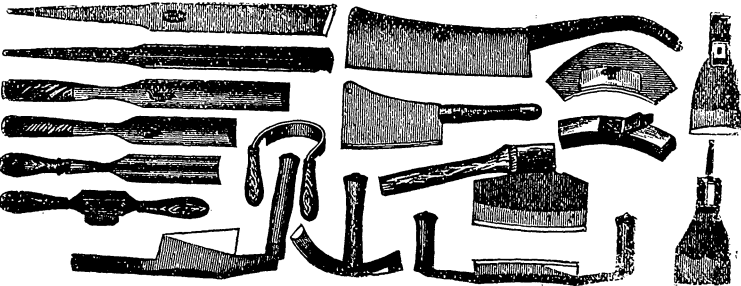


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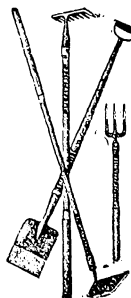
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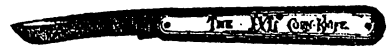
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Will mark price &c. on cutlery.

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Guaranteed not to rust.

Flows from Pen as readily as ink.

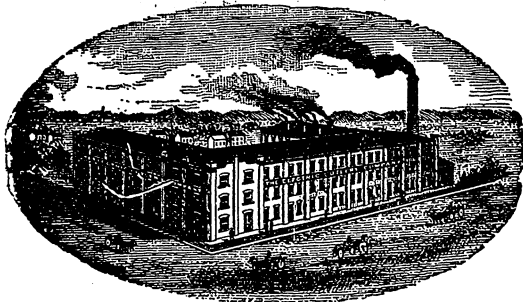
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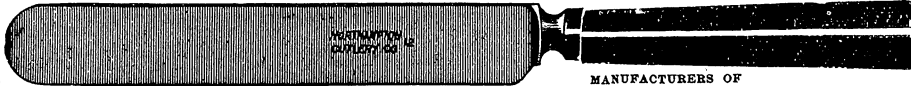
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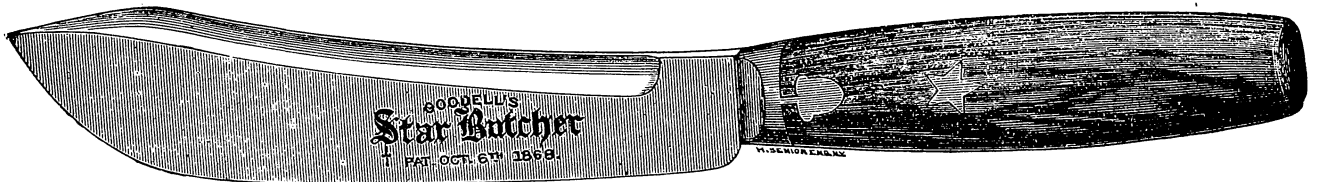
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**THERE IS NOTHING NEW
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WE DON'T KNOW HOW TO IMPROVE IT.

Blade is made of steel especially prepared for the purpose, and it is made just right; finish excellent; shape unsurpassed; the handle just fits the hand.

GENERAL APPEARANCE IRREPROACHABLE.

Made in sizes from 5 inch to 8 inch; a strictly first-class butcher knife at a moderate price.

WE HAVE OTHER BUTCHER KNIVES,

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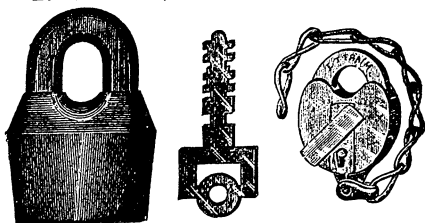
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ROOT, HOG, OR DIE!

Deep to the Roots of Hell (Milton) have I gone to procure the best material to make my "Wrapped Iron Handle" Choppers, Cleavers, Beef Splitters and Hog Splitters. They are all handsomely etched with my "Anchor Brand," and fully warranted.

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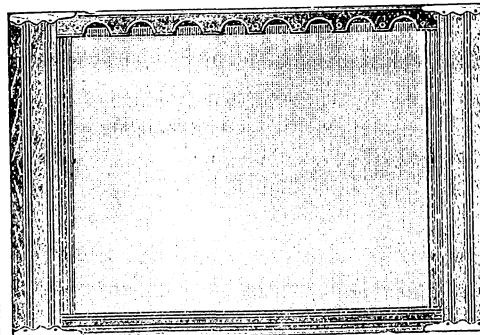


Originators, designers, patentees and manufacturers of all the leading popular styles of **PADLOCKS**, Key-Locking Scandinavian with our patent Inter-Locking Tumblers; the only reliable lock of this style ever made. **SELF-LOCKING** Scandinavian of the highest type of perfection. Dust Proof Railroad, Freight Car and Switch Padlocks. Brass, Bronze, Steel and Malleable Iron Padlocks for all purposes and in all finishes. 131 different kinds. Write for our new 100-page catalogue.

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WITH PATENT FLY ESCAPE. (Patented Aug. 16, 1892.) MADE IN EIGHT SIZES.



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THE LATEST.



THE VICTORIA.

We have a full line of above, which is the neatest pattern ever presented to the trade, and it is stamped



NONE GENUINE WITHOUT THIS TRADE-MARK.

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SILVER PLATED KNIVES AT REDUCED PRICES.



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Combination Sets, 6 Knives and 6 Forks, in Satin Lined Case, at same price as Knives.

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**BUCK
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Every Pair Warranted.
 Liberal Discount to Trade.

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PIG FORCEPS



These Instruments are a necessity to EVERY FARMER. They save enough Sows and Pigs every season, and on every Farm where Pigs are raised this Tool is indispensable. **SELL AT SIGHT** where seen by any practical Farmer. Dealers not acquainted with them should write the manufacturers. Reimers pays the freight on half-dozen orders or over. **J. N. REIMERS, Davenport, Ia.**

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The Drain Cleaner is a hand machine used as a shovel. The dirt pan is made of No. 18 Steel 3 inches deep and 12 inches long, with vertical end in rear. It has a decided advantage over other machines in dipping water and dirt. It is also used for letting down tiling in ditches, which is very convenient and saves extra labor of standing and working in muddy ditches. The iron adjusting rod can be used with great rapidity and ease and can be adjusted to pull or push with as quick a motion as may be desired. To use it in any particular shape tighten the set screw.

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 BRITANNIA SPOONS
BOARDMAN & SON
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 THEIR MAKE IS EQUAL TO ANY OTHER.
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HARDWARE AND GENERAL AGENT.

(FIRST-CLASS REFERENCES.)

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WE MAKE ONLY

The Very Highest Grade
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MECHANICS' TOOLS.

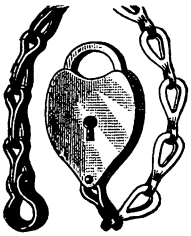
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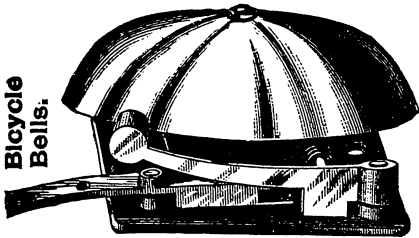


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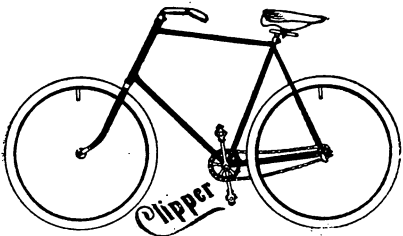
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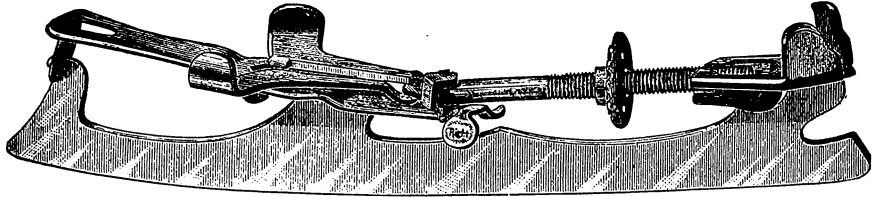
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A wonderful, strong, light wheel, with a dozen points of superiority over all others. Our "new departure" catalogue (free) tells all about it.

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THE LONG REACH SKATE

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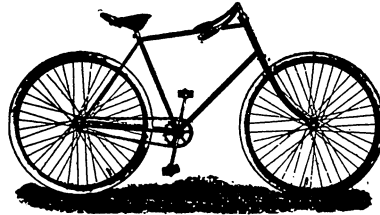


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Do you want to buy Bicycles CHEAP?

If so, write to us for prices on the Falcon No. 1, Falconess, Falcon Junior (boys' bicycle) and Hackney.

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A Difficult Problem Answered!

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Handle the Reliable and Latest
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No. 1, \$125.00,
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The Wellington

Our new catalogue will tell you all about it. Agents wanted, to whom we will allow most liberal inducements.

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THE PERFECTION TRICYCLES Ball

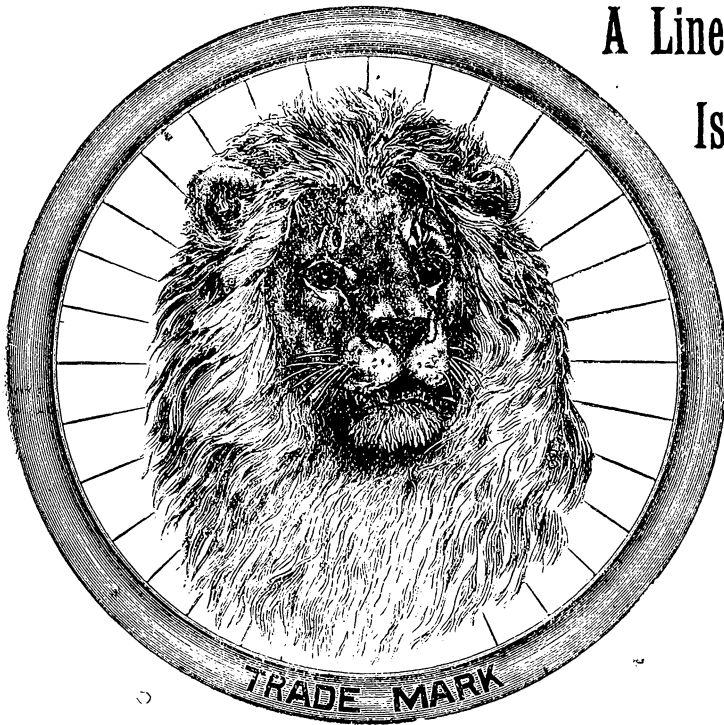
Are Ball Bearing and run as easily as Bicycles. Nothing yet put on the market can compare with them. The cost is about the same as plain bearings. Sold by

HARDWARE TOY JOBBERS.

Manufactured by

Bearing
Girls'

The Toledo Metal Wheel Co, Toledo, O. Tricycles.



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MONARCH BICYCLES.

They will make you more money than anything you can handle.

At the World's Columbian Exposition they received a general award for all points, including

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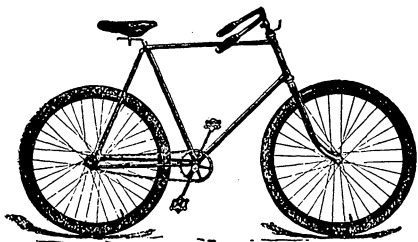
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Send for twenty-four page catalogue.

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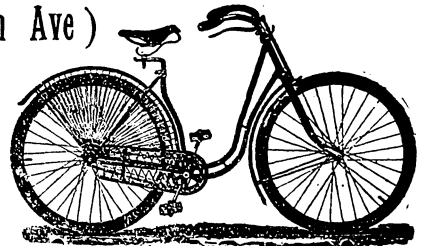
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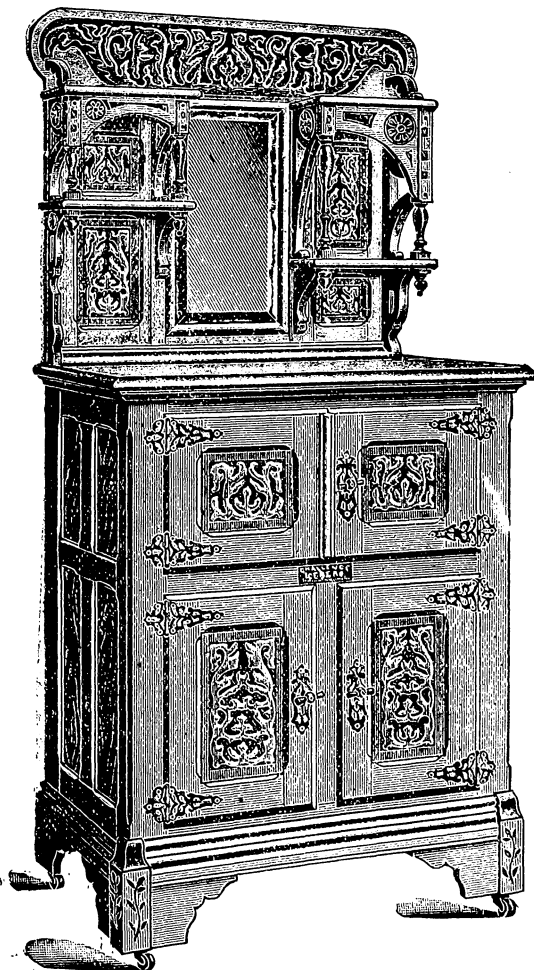
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MANUFACTURED BY

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Write for our large Illustrated Catalogue for 1894.



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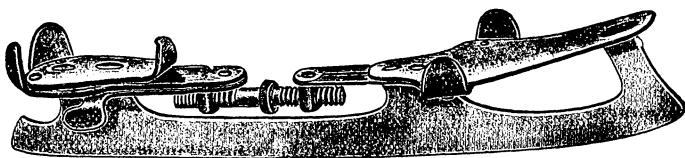
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Littlefield's Collapsing Net Ring and Staff,

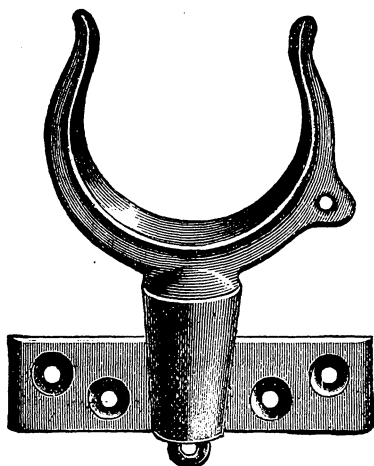
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The most extensive Skate Factory in the World.



—THE— Columbian Rowlock,

With Interchangeable Sockets.

Number,	0	1	2	3	4
Between Horns,	1¼,	2,	2¼,	2½,	3 inch.

LIGHT, STRONG and GRACEFUL.

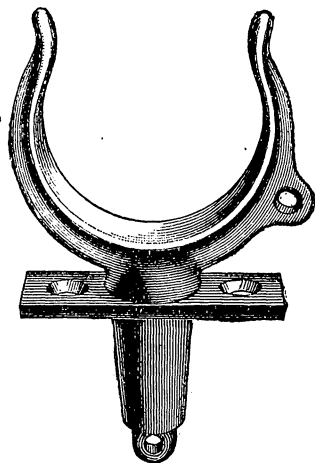
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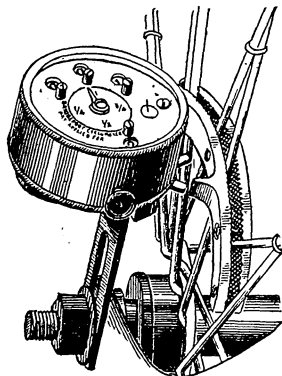
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BRIDGEPORT CYCLOMETER. \$3.50.



Registers 1000 miles accurately and repeats, or can be set back to zero at any time. Perfectly Noiseless, Dust Proof and Water Proof. Nothing to get out of order and can be adjusted to any wheel. A high grade cyclometer within the reach of every bicyclist.

PRICE \$3.50 Made in two sizes, viz.: for 28-inch and 30-inch wheels. send for catalog of sundries. Sold by all bicycle dealers. Cyclometers will be ready for delivery April 1.

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Office, 35 Barclay St. Warehouse, 40 Park Place, New York.

Carry Stock of Jackson, Mich., Farming Tools

Shipments from Factory if preferred.

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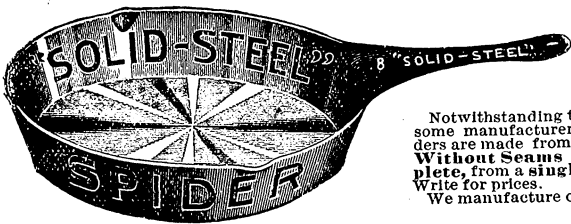
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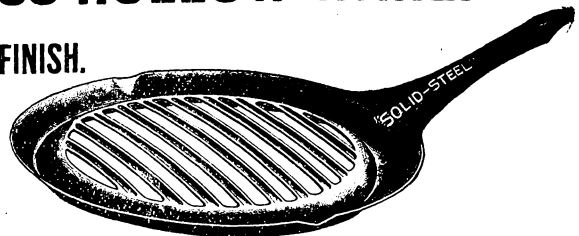
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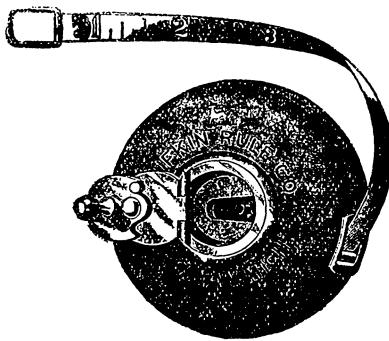
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Notwithstanding the claims made by some manufacturers' agents our spiders are made from Wrought Steel. Without Seams or Rivets. Complete, from a single piece of metal. Write for prices. We manufacture our own goods.

Made without Seams or Rivets.

The Cleveland Stamping & Tool Co., Cleveland, O.

We do Light and Heavy Stamping and Blanking. Also build Dies and Stamping Machinery.

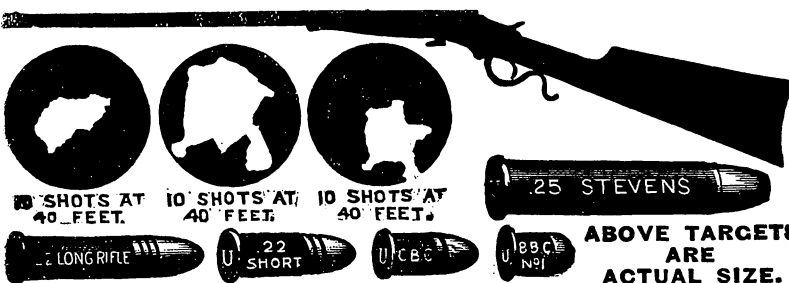


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Entirely new. Handle or crank when closed is perfectly flush with leather case. Opens by pressing button on opposite side and folds out double, giving increased leverage. Best and most convenient steel tape on the market. Fully guaranteed. Will send samples on approval. We carry a complete stock of our goods at our New York Office, 20 Murray St.

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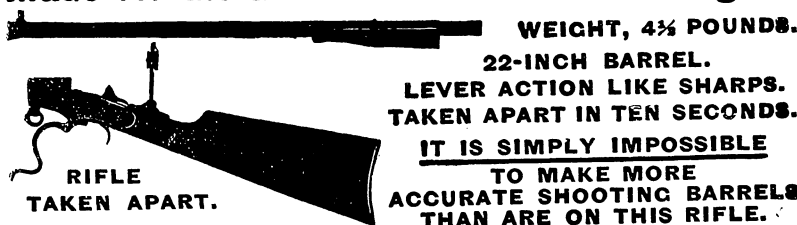


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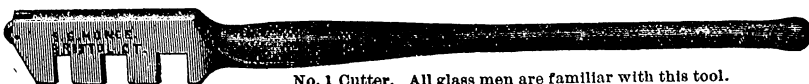
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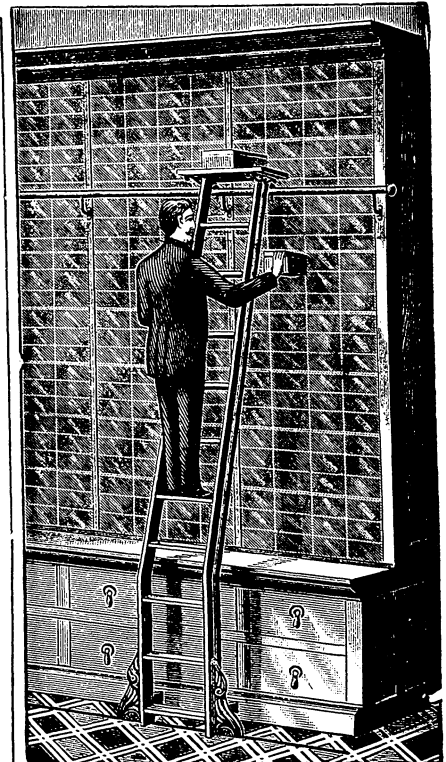
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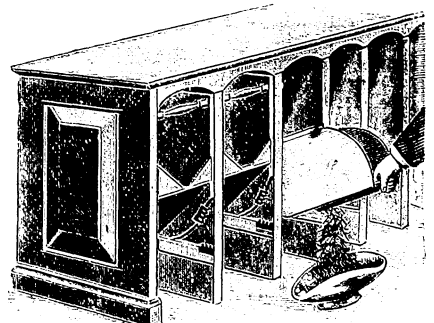
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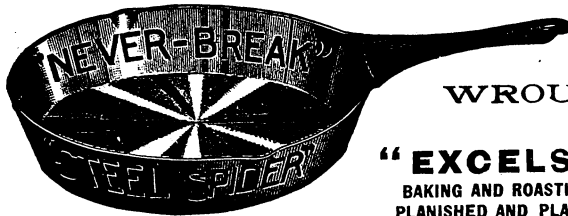
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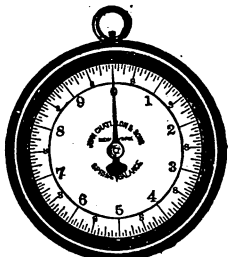


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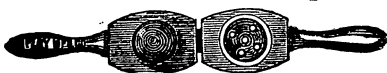
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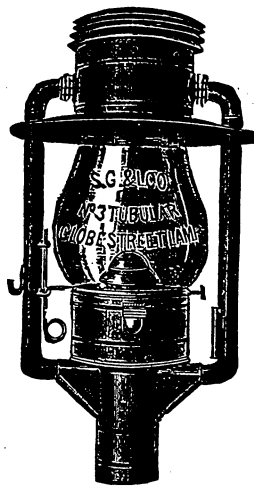
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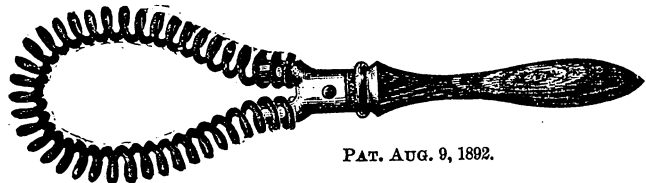
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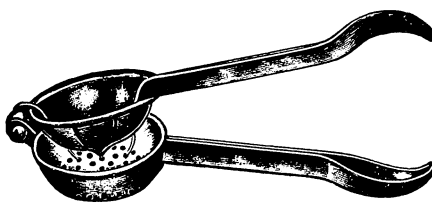
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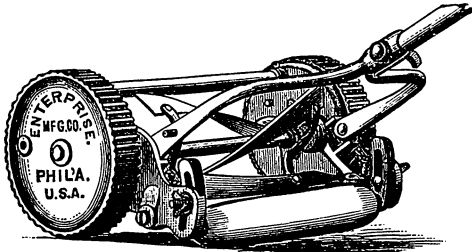
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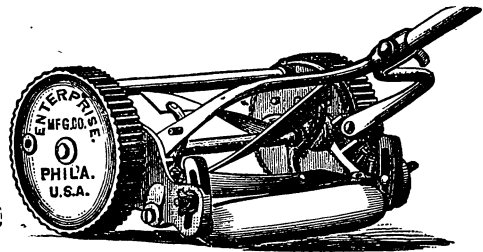
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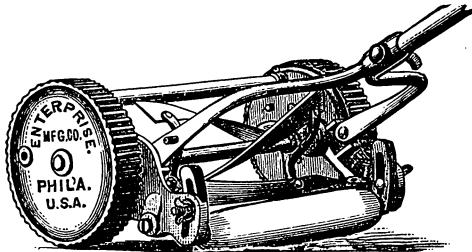


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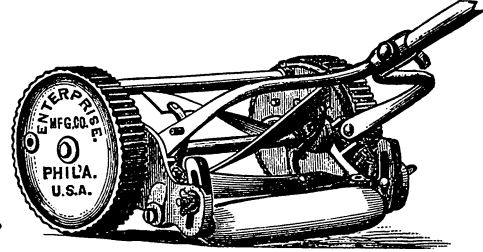


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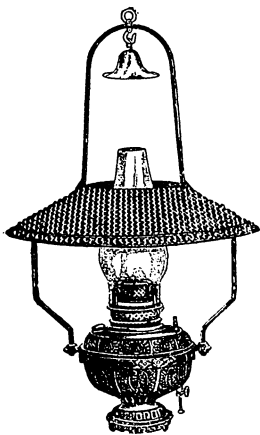


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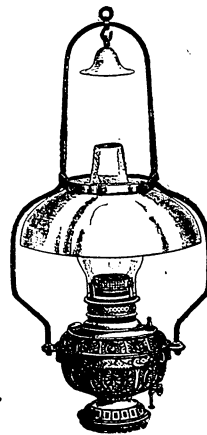
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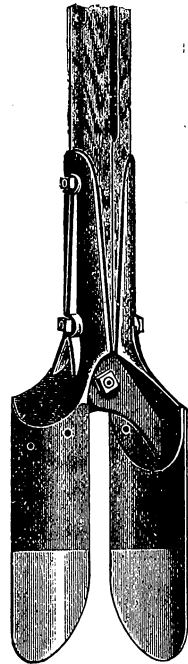
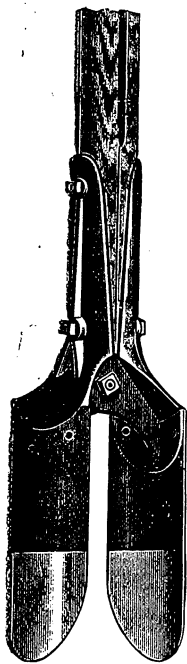
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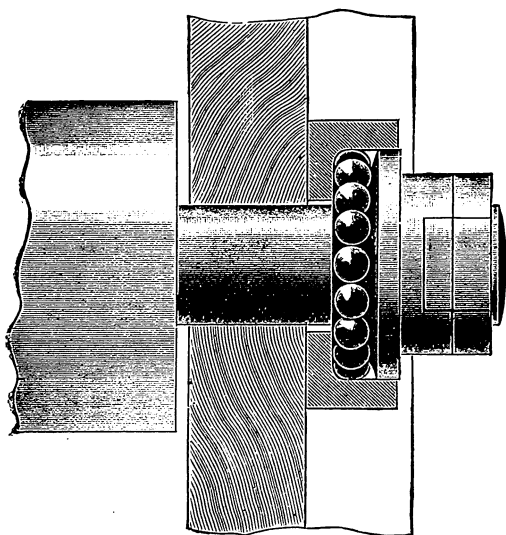
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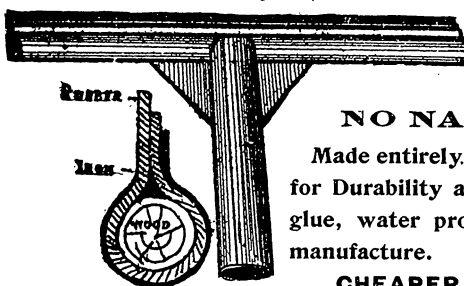
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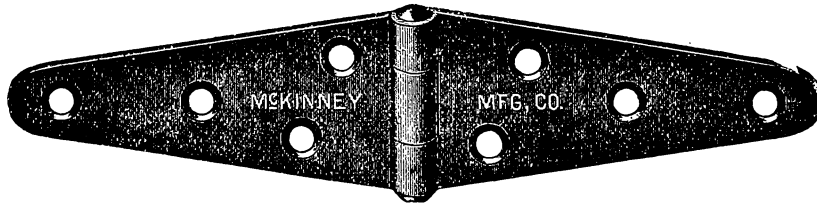
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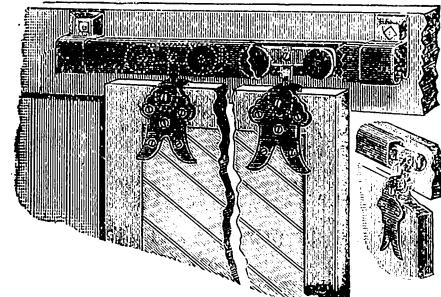
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Hangers.

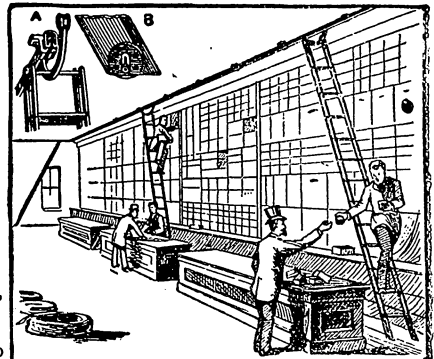
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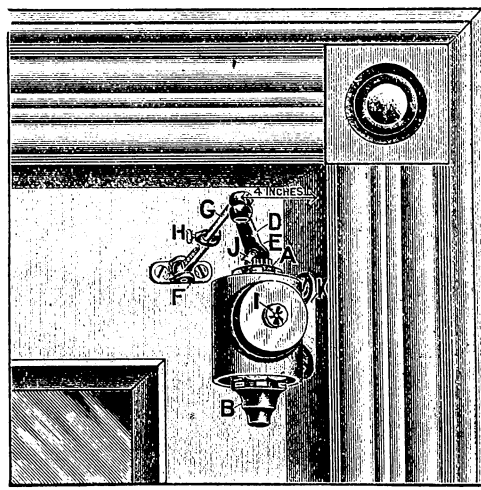
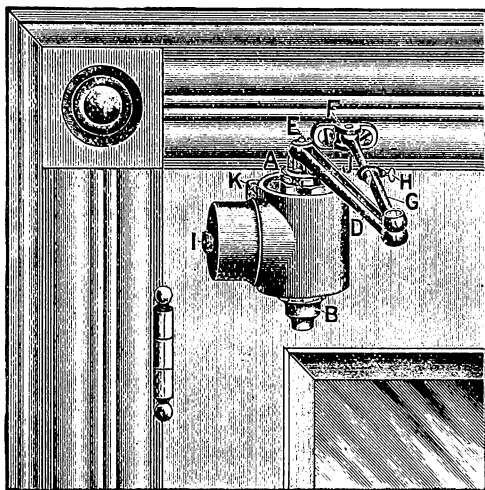
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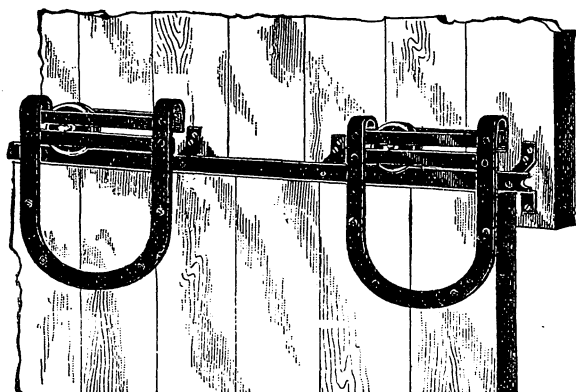


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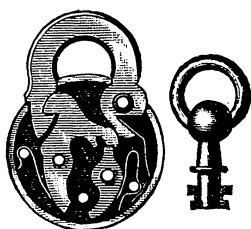


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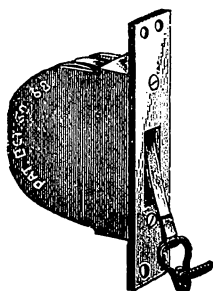
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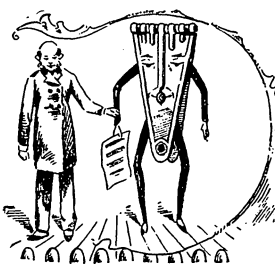
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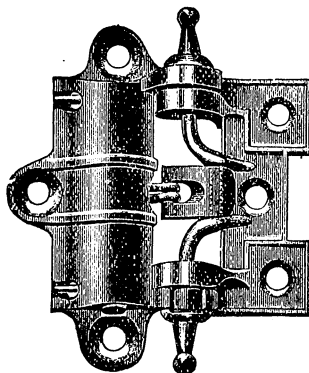
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Holds the door strongest when closed.

Resistance gradually de-
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and increases in closing the door.

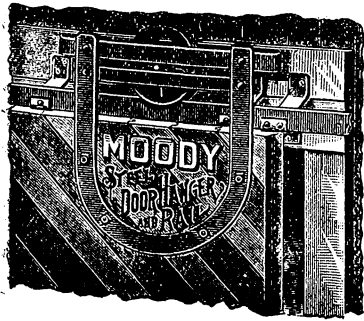
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VICTOR MFG. CO., Newburyport, Mass. STEEL RAIL.



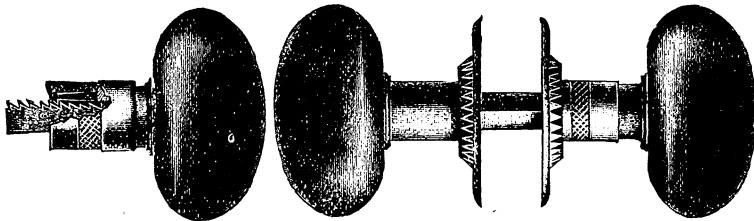
Showing one-half set of hangers attached to door.



The Only Bracing Bracket Made.

HANGERS.	PRICE-LIST.	Per Doz. prs.
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RAIL, per foot.....		6 $\frac{1}{2}$ cents.

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Half size cut of knob as applied to door. NO SIDE SCREWS REQUIRING WASHERS.

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TACKLE BLOCKS

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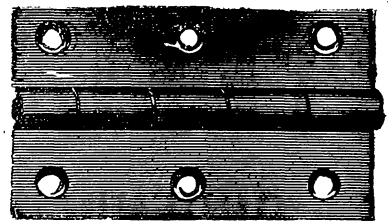
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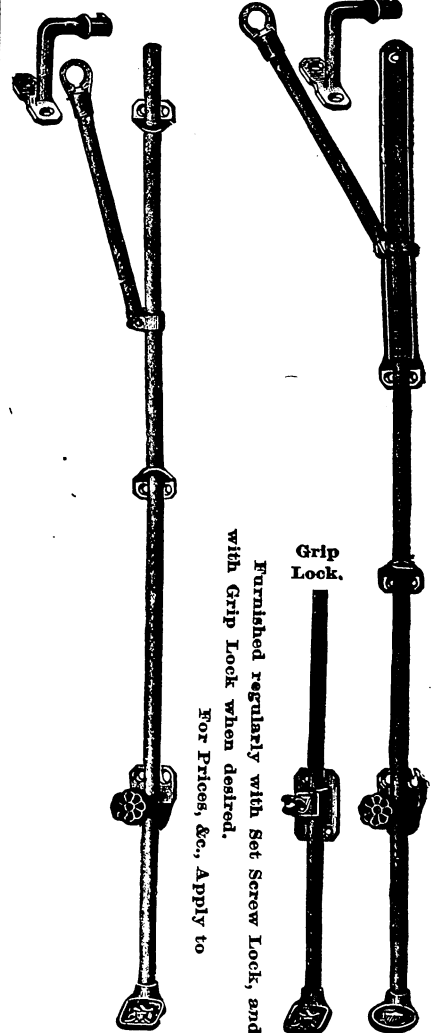
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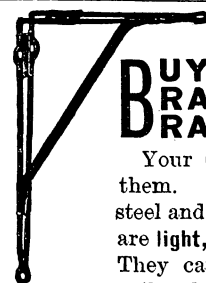
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Furnished regularly with Set Screw Lock, and with Grip Lock when desired.
For Prices, &c., Apply to

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BUY BRADLEY BRACKETS!!!

Your Customers will like them. They are made of steel and are not brittle. They are light, strong and artistic. They can be put up with nail and hammer. Write for prices.

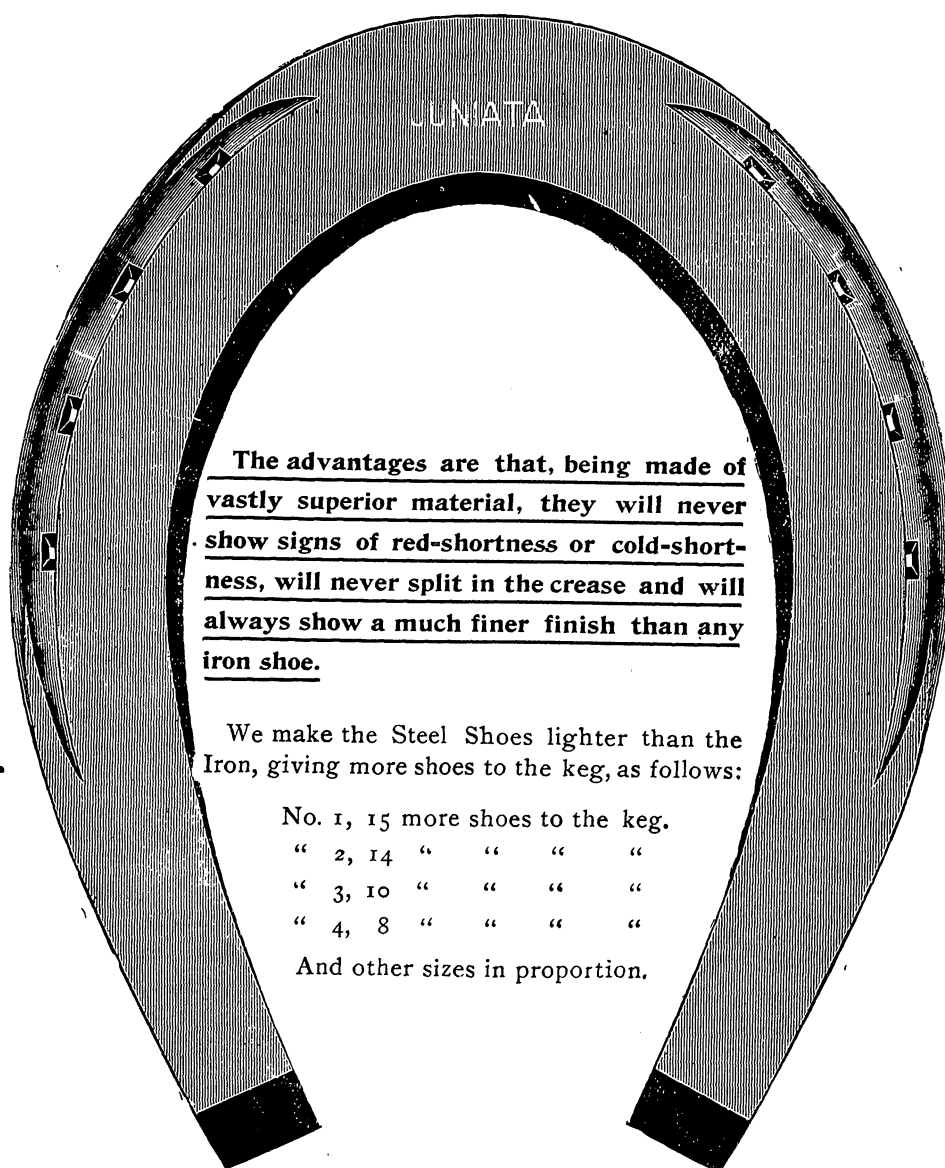
ATLAS MFG. CO.,

New Haven, - - Conn.

STEEL HORSE SHOES.

SHOENBERGER & CO., PITTSBURGH, PA.,

After numerous and costly experiments have succeeded in manufacturing a special quality of soft homogeneous steel, specially adapted to the manufacture of Horse and Mule Shoes, and are now making from this steel Extra Swaged, and Government Pattern Horse and Mule Shoes. They give the best of satisfaction everywhere, and we furnish them to the trade at the same prices as the regular iron shoe sold by ourselves and our competitors. We are at present making our Roadster Pattern Horse Shoes out of Iron, but we will make them of Steel also within a short time.



The advantages are that, being made of vastly superior material, they will never show signs of red-shortness or cold-shortness, will never split in the crease and will always show a much finer finish than any iron shoe.

We make the Steel Shoes lighter than the Iron, giving more shoes to the keg, as follows:

No. 1, 15 more shoes to the keg.

" 2, 14 " " " "

" 3, 10 " " " "

" 4, 8 " " " "

And other sizes in proportion.

No. 2 EXTRA SWAGED FRONT.

We also beg to say that we have introduced improved machinery into our new factory and have doubled our capacity, and are now prepared to furnish the best shoe, either iron or steel, ever offered to the trade.

We would also call your attention to our Improved Steel Toe Calk, equal to any in the market. To secure the best wearing qualities use sand or borax in welding on a calk and cool off at a dark red, or still better, cool off without plunging in water. We make sizes numbers 1, 2, 3, 4, 5 and 6, packed in 25-pound boxes.

Write to us for information and prices, or apply to jobbers and dealers, who sell them everywhere.

SHOENBERGER & CO.,

JUNIATA IRON AND STEEL WORKS, - - - PITTSBURGH, PA.

SCRANTON FORGING CO.,

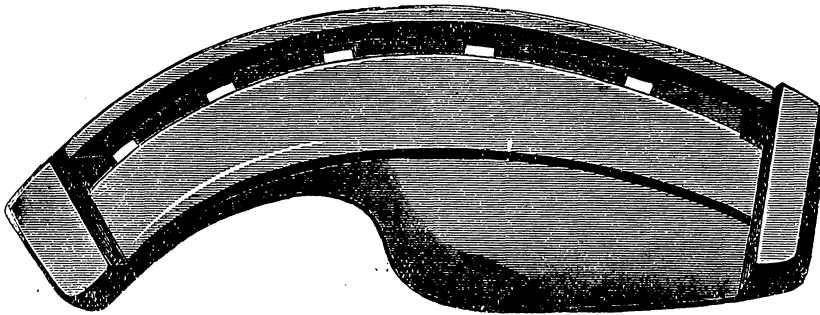
SCRANTON, PA

CARRIAGE HARDWARE AND SPECIAL DROP FORGINGS.

FORGED

OX

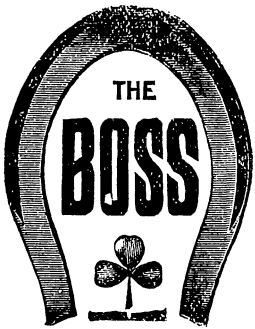
SHOES.



Made under Deeble's Patent, Aug. 9, 1887.

Our 1891 pattern is a modification of the style we have made for the past four years, giving additional strength to the web.

IT IS JUST RIGHT.



HORSE AND MULE SHOES

Superior Quality, Shape and Finish.

BRYDEN HORSE SHOE CO.,

CATASAUQUA, PA.

RHODE ISLAND PERKINS HORSE SHOE CO.,
MANUFACTURERS OF

Horse and Mule Shoes of the Perkins Pattern.

SPECIALTIES:—X L Steel Shoes, Toe Weight Shoes and Goodenough Shoes.
Works at Valley Falls, R. I. Office, 31 Exchange Place, Providence, R. I.

F. W. CARPENTER, Pres., C. H. PERKINS, Gen. Manager, R. W. COMSTOCK, Sec'y,
CHARLES R. STARK, Treas.

J. C. McCARTY & CO., Agents - 97 Chambers Street, New York.

THE NEW DIAMOND STATE HORSE AND MULE SHOES.

JUST TRY THEM and YOU will say they excel all others.

MANUFACTURED BY

DIAMOND STATE IRON CO.

WILMINGTON, DELAWARE.

Other "high grade" specialties in Rivets, Spikes, Splice Bars, Track and Machine Bolts, Blaz
Nuts, Stay Bolt Iron, Horse Shoe Iron, Bar Iron, &c.

PHILADELPHIA OFFICE, 206 So. Fourth St. { Correspondence invited } NEW YORK OFFICE, 11 Pine St.



Covert Pants Stretcher.

The Covert "Pants Stretcher" will
restore the pantaloons to their
original shape and length.



It removes all **WRINKLES and BAGGING AT THE KNEES**, giving them the appearance of having just left the tailor's hands.

It also holds the pants in a convenient position for brushing and cleaning.
The Stretcher cannot get out of order, and can be adjusted in the pants in a few seconds.
It being applied inside the pants, it does not leave any mark on the exterior, as is the case with stretchers where clamps are used.
It is made of steel wire, light and compact, and being in sections can be packed in a valise when traveling. Sold by the trade, or

Sample pair sent by mail to any address, free of postage, on receipt of \$1.00.

MANUFACTURED ONLY BY

COVERT MFG. CO., West Troy, N. Y.

BURDEN'S

HORSE SHOES.

"Burden Best"

Iron

Boiler Rivets.

The Burden Iron Co.

TROY, N. Y.

PHOENIX

HORSE SHOES.

PHOENIX HORSE SHOE CO.,

Poughkeepsie, N. Y.

NEW YORK OFFICE, No. 66 Reade St.


Standard Horse Shoe Co.,

Manufacturers of

HORSE AND MULE SHOES.

LEEDS, ROBINSON & CO., General Agents,

4 Liberty Square, Boston, Mass.

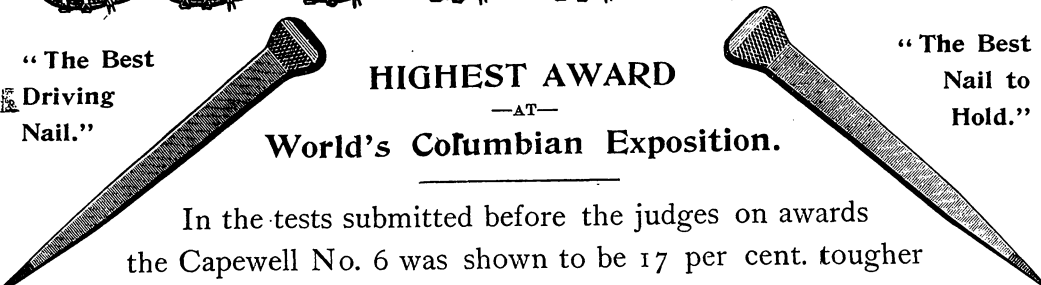
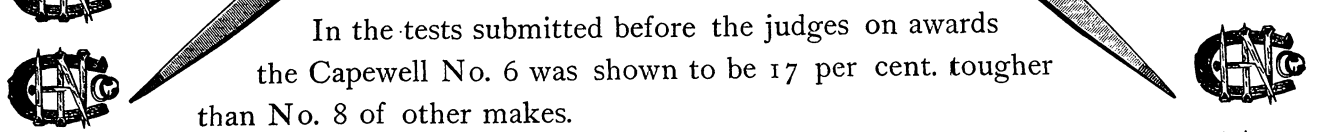


“The Best Driving Nail.”

HIGHEST AWARD
—AT—
World's Columbian Exposition.

In the tests submitted before the judges on awards the Capewell No. 6 was shown to be 17 per cent. tougher than No. 8 of other makes.

“The Best Nail to Hold.”


CAPEWELL HORSE NAILS,

—MADE BY—

THE CAPEWELL HORSE NAIL CO., - - - HARTFORD, CONN.

Office of D. C. BURNHAM,
Director of Works, World's Columbian Exposition,
JACKSON PARK, CHICAGO, ILL.

October 23, 1893.

To THE CAPEWELL HORSE NAIL CO.:
Gentlemen—I have used your horse nails here on the horses belonging to the World's Columbian Exposition, and I think they are far superior to any others that I have ever used. As I have been in the horseshoeing business for about twenty-five years, I know what I am talking about.

Very respectfully,
HERMAN J. HENKE,
Foreman Blacksmith, World's Columbian Exposition.

The Capewell Patent Corrugated Horse Nail.

Needs No Clinching.



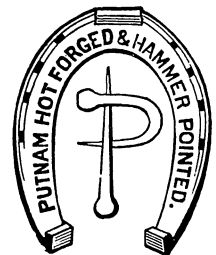

Highest Award

FOR

Supreme Excellence

TO

The **PUTNAM** Hot=Forged and
Hammer=Pointed Horse **NAILS,**



At the *World's Columbian Exposition* at Chicago. A medal and diploma worded:
“Supreme excellence in material, method in manufacture, and quality of finished product; elasticity and smoothness combined with holding power in clinch.
It allows the use of very small nails.”

There is nothing beyond “supreme excellence,” nor is there anything comprised in a horse nail, except the “material from which it is made,” “the method of manufacture,” and “quality of finished product.” Putnam nails, by their “elasticity,” give slightly to the expansion and contraction of the hoof while the horse is in motion; by their “smoothness,” do not enlarge the nail holes in the hoof, while their “supreme excellence,” in “holding power in the clinch,” enables them to hold the shoe in the hardest service until worn out.

By the “use of small nails,” large holes are avoided and money saved to the smith.

Thus it will be seen that the officials of the *World's Columbian Exposition* recognize what qualities go to make up a good horse nail and that only the “Putnam” contains them all.

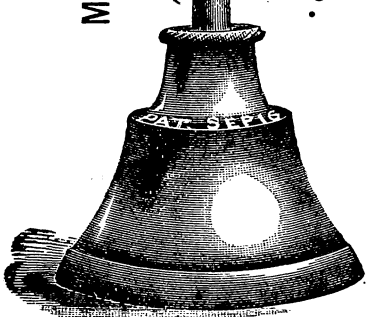
PUTNAM NAIL CO.,
Neponset, Boston, Mass.

Of Best Material and Workmanship.

Pat. Dec. 15, '80

BUFFALO SCALE CO., Buffalo, N. Y. SCALES OF ALL KINDS.

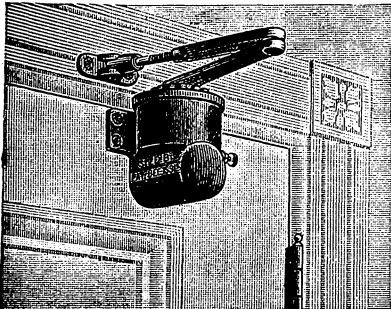
Patented Articles
OF
MALLEABLE IRON.
New Improved
PATENT
Malleable Iron
OILERS.
Three Sizes, Nos. 1, 2 and 3.



Hammer's Adjustable Clamps.
Mall. Iron Hand Lamps.
M. I. Hanging Lamps.
New Pattern Heavy Screw Clamps.
Strongest in the market.

For Sale by all the Principal Hardware Dealers.
SEND FOR PRICE LIST.
MALLEABLE IRON CASTINGS
of superior quality, and Hardware Specialties
in Malleable Iron, made to order.

HAMMER & CO., Branford, Conn.



Bardsley's Liquid Door Check and Spring

Perfect in action, durable, neat in appearance, low in price and fully warranted. Responsible Agents wanted in the principal cities.

J. BARDSLEY, 149 & 151 Baxter St., New York.

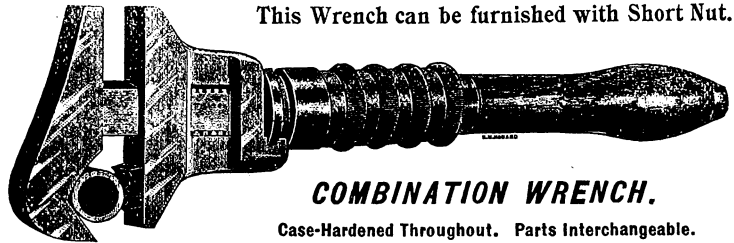
HARDWARE DEALERS
CAN RECOMMEND THE
**CHAMPION METAL WINDOW
SASH CHAINS**

to their customers as a reliable substitute for
Sash Cords, very strong and lasting (some in
daily use ten years), and gives thorough satis-
faction wherever used. The patented attach-
ments are very simple and can be applied to
any window.

MANUFACTURED ONLY BY

"THOMAS MORTON,"
65 Elizabeth Street,
Write for Prices. **NEW YORK.**

The Practical Polish and Varnish Maker.
By H. C. STANDAGE. A treatise containing 750 re-
ceipts and formulae for the manufacture of var-
nishes, polishes, &c. 12mo, cloth.....\$2.50
For Sale by DAVID WILLIAMS, 96-102 Reade St., N. Y.



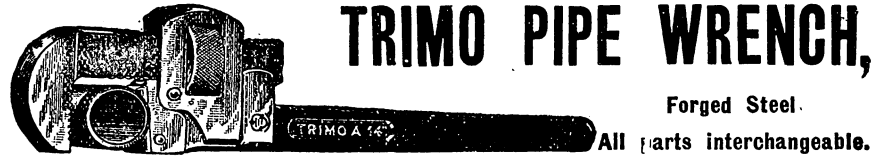
This Wrench can be furnished with Short Nut.

COMBINATION WRENCH.

Case-Hardened Throughout. Parts Interchangeable.

This wrench not only combines the superior qualities of a Gas Pipe Wrench but also all the
requisite combinations of a regular Nut Wrench, thus making a combination which has no equal.
For Circulars and Price-List, address

BEMIS & CALL HARDWARE & TOOL CO., Springfield, Mass., U. S. A.



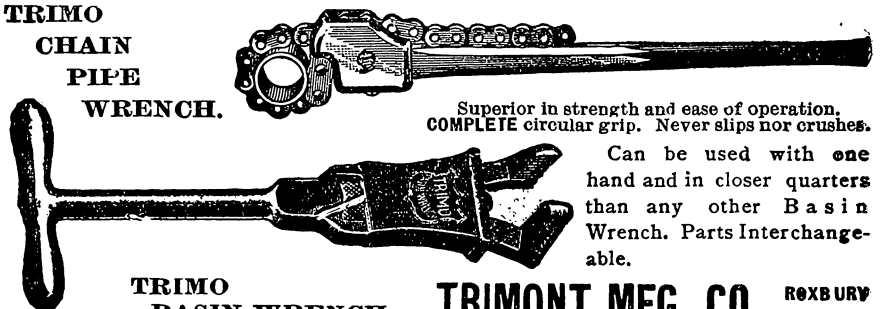
TRIMO PIPE WRENCH,

Forged Steel.

All parts interchangeable.

Grips firmly without loss of motion. Releases readily. Never locks. Causes no
trouble in close quarters. Does not crush the pipe.

**TRIMO
CHAIN
PIPE
WRENCH.**



Superior in strength and ease of operation.
COMPLETE circular grip. Never slips nor crushes.

Can be used with one
hand and in closer quarters
than any other Basin
Wrench. Parts Interchange-
able.

**TRIMO
BASIN WRENCH.**

**TRIMONT MFG. CO., ROXBURY
MASS.**

Box Wrenches.

Double Head Set-Screw Wrenches.

Drop-Forged From Bar Steel.

IN EIGHTEEN UNIFORM SIZES.

From 3-16 in. to 1 in. inclusive.

J. H. WILLIAMS & CO.,

9 to 15 RICHARDS ST., BROOKLYN

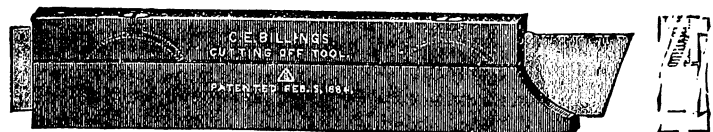
Makers of Drop-Forged Specialties and Brock's
Patent Chain Pipe Wrench.

SEND FOR ILLUSTRATED CATALOGUE.



WYMAN & GORDON
WORCESTER, MASS.
DROP FORGINGS

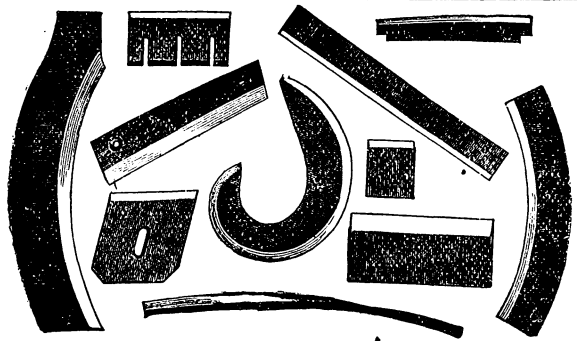
Billings' Patent Cutting-Off Tool.



The Holder is drop-forged, of steel, and finished in a thorough
manner. The Cutters are made of the best tool steel and furnished
in the following thicknesses: $\frac{1}{16}$, $\frac{3}{32}$, $\frac{1}{8}$, $\frac{5}{32}$, $\frac{3}{16}$, $\frac{1}{2}$.

THE BILLINGS & SPENCER CO.,

HARTFORD, CONN., U. S. A.

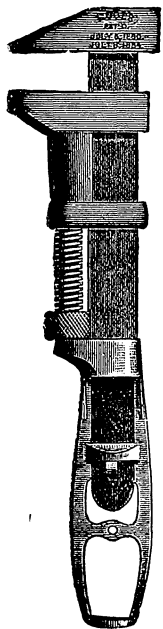
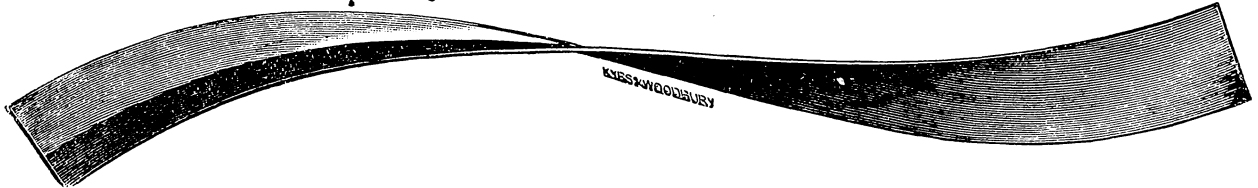
**LORING COES & CO.**

WORCESTER, MASS.

Manufacturers of **MACHINE KNIVES.**

Shear Blades and Strips, Moulding Cutter Plate, Die Stock for Leather, Cloth and Paper Cutting Dies. Lawn Mower and Hay Cutter Knives of every description.

End view of Plated Stock for Dies, Lawn Mower Knives, Blades Etc., showing how the Steel is laid.

**L. COES'**

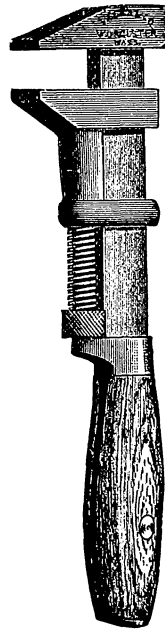
Genuine Improved
**KNIFE HANDLE
PATENT**

**Screw
Wrenches**

MANUFACTURED BY
**COES WRENCH CO.,
WORCESTER, MASS.**

Established in
1839.
Registered
March 31, 1874.

Patented July
6, 1880.
Patented July
8, 1884.



Sectional View Illustrates our New Knife Handle, showing Malleable Iron Frame and Shank of Bar keyed into position.

✓ Straight Bar, Extra Long Nut for Screw in Jaw. ✓

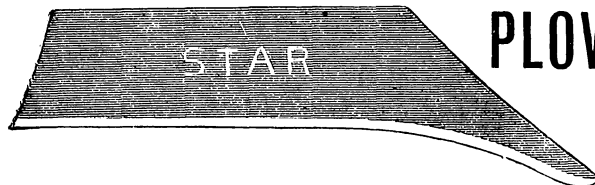
The BEST MADE and STRONGEST WRENCH in the MARKET.

**J. C. McCARTY & CO.,
JOHN H. GRAHAM & CO. } New York Agents.**

STAR MANUFACTURING CO.,

Carpentersville, Kane Co., Ill.

MANUFACTURERS OF

**PLOW SHARES.**

Plow Moldboards,
Landside Plates,
Landside Points.

Lister Shares, Fin Cutters, Cultivator Shovels, Cultivator Shovel Points, Plow Points, Screw Coulter Hubs.

Mention IRON AGE.

**STEEL BARROWS.****LANSING WHEELBARROW CO.**

LANSING, MICH.

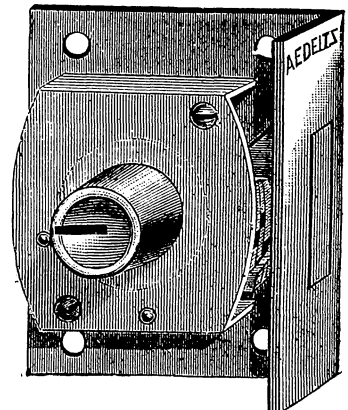
• IMPROVED MINE LAMP •
FOR ANTHRACITE AND BITUMINOUS MINING.

6 DIFFERENT STYLES OF SPOUTS.

SAMPLE 15¢.

B.E. LEONARD, Scranton, Pa.

SEAMLESS BRASS COLLAR
BRASS HINGE
Lid Solid
No SOLDERING

A. E. DEITZ

No. 51 Lock.

J. C. McCARTY & CO., Agents,
97 Chambers and 81 Reade Sts., New York.

Factory, **BROOKLYN, E. D., N. Y.**

EXPANSION BOLTS.

Manufacturers of Single and Double,
For fastening all kinds of Structure to Brick and Stone
Work. Catalogue furnished on application.
STEWART & ROMAINE MFG. CO., - Philadelphia.

THE WILCOX & HOWE COMPANY,
BIRMINGHAM, CONN.,
MANUFACTURERS OF

**Full Line of Carriage Hardware
ALSO SPECIAL FORGINGS.**

Estimates cheerfully given. Send for Catalogue

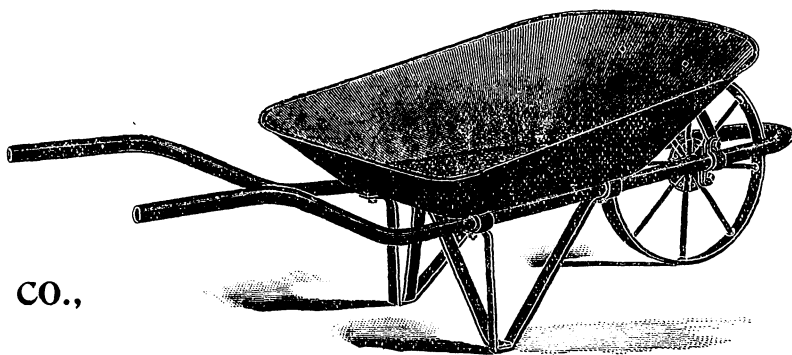
An Oft Told Tale.

But t'will bear repetition.

We are the largest manufacturers
of wheelbarrows in the world.

Our stock comprises the
greatest variety of styles and sizes,

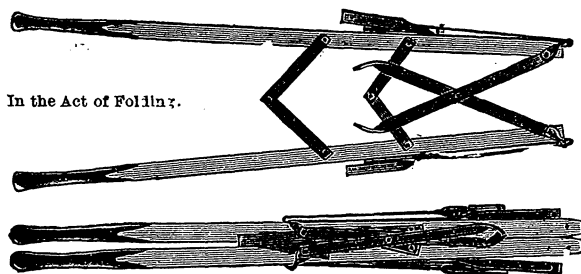
And our productions are of
the best grade at prices to suit
the dealer. Write for Cat.



The
KILBOURNE & JACOBS MFG. CO.,
Columbus, O., U. S. A.

Knocked Down!

SIZE
3 in. x 5 in.
x
60 inches.



In the Act of Folding.

Folded Ready to Ship.

"The Champion"

Is the newest, latest and best. Simple, strong, no parts to lose. With wood or metal tray. This solves the question of handling Barrows cheaply and successfully.

The Only Folding Steel Frame Barrow on the Market.

Write for Prices and Order a Sample Lot. We make all Styles.

Bryan Manufacturing Co., = Bryan, O.

ALL STEEL WHEELBARROWS & SCRAPERS



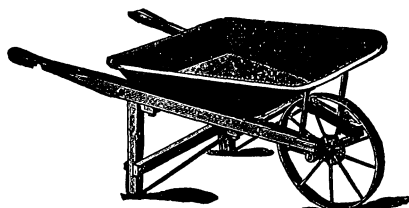
Write
for
Catalogue

MANUFACTURED BY

AMERICAN STEEL SCRAPER CO.
1104 Court Street, SIDNEY, O.



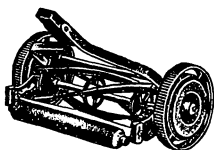
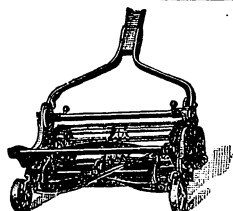
Selling A Barrow



Is a difficult matter when it's no good. That's what many cheap, slapped together affairs are, as many a dealer can testify.

Moral:—Buy from makers of known reputation like the

Sidney Steel Scraper Co., 924 Poplar Street, SIDNEY, OHIO.

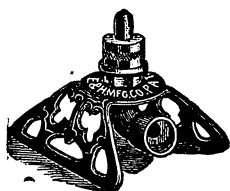
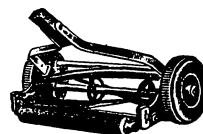
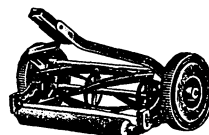


A new catalogue of the best line of

LAWN MOWERS

in the market is yours for the asking.

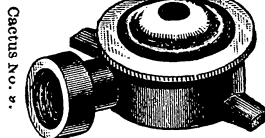
BLAIR MFG. CO.,
SPRINGFIELD, MASS.



Japanese No. 12,
Adjust.

LAWN SPRINKLERS.

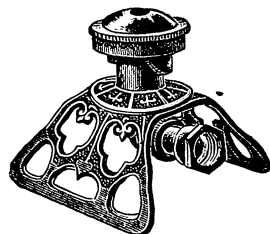
We manufacture the BEST and CHEAPEST Lawn Sprinklers in the World.



Cactus No. 2.

The only Sprinklers which have no revolving parts to leak or wear out.
The only Sprinklers free from small holes, and which cannot become clogged with gritty substances.
The only Sprinklers which are adjustable and will give a spray as fine as the mist of Niagara, or as heavy as the area of the supply pipe.

The best Sprinklers for high pressures, and the only sprinklers which will give satisfaction with low pressures.
We also manufacture the old style revolving sprinklers, but for our own use would not have them

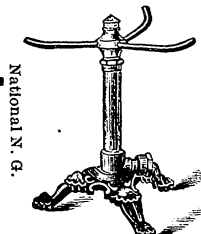


Cactus No. 6.

Ette & Henger Mfg. Co.

ST. LOUIS, MO.

SEND FOR DESCRIPTIVE CIRCULARS.



National N. G.

The Cockburn Barrow and Machine Co.

OFFICE AND WORKS:

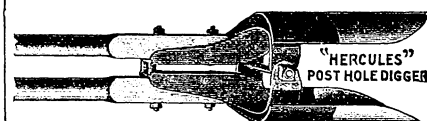
234 to 240 Eleventh St.,

JERSEY CITY, N. J.

NEW CONCRETE MIXING MACHINES.

Coal and Ash Buckets, Coaling Tubs, Coal and Coke Cars, Patent Tubular Frame Wheelbarrows, Furnace Charging Barrows and Cars, Sheet Iron Work of every description, Patent Power Punching Machines, Every Description of General Forgings, Dimpfel Blowers, Machine Work

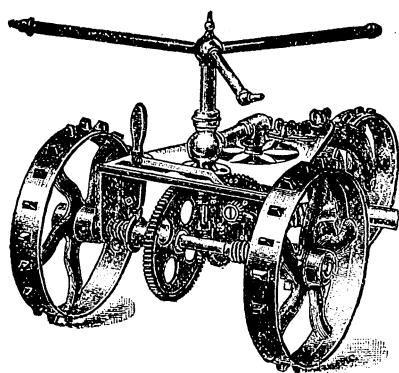
THE HERCULES



Is the only tool worthy the name of Post Hole Digger. Do not be deceived into buying cheap and inferior affairs, claimed to be "just as good as the Hercules." It is the Leading Digger on the market to-day, and has the largest sale. For sale by leading jobbers everywhere. We are also headquarters on Lawn Rakes, Lawn Sprinklers, Saw Sets, Curry Combs, Etc.

F. E. KOHLER & CO.,

CANTON, OHIO, U. S. A.



LITTLE GIANT

Traveling Lawn Sprinkler.

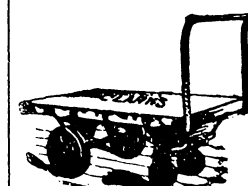
PATENTED.

Can be set to travel anywhere from 15 to 500 feet per hour, either on a straight line or in a circle, and can be gauged to throw water over a swath 5 to 50 feet in width.

Highest Award at World's Columbian Exhibition.

SEND FOR CIRCULAR.

PORTLAND LAWN SPRINKLER CO.,
PORTLAND, ME.



TRUCKS of all kinds. Mounted on rubber or iron wheels. Trucks made to order. Write for prices. Catalogues free.

G. P. CLARK, Box 0,
Windsor Locks, Conn.

There is a difference in

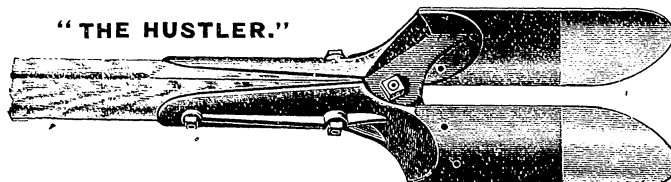
POST HOLE DIGGERS,

and by insisting of your jobber upon having any one of the 5 STYLES, made by the

Gibbs Mfg. Co., Canton, Ohio.

you can rest assured that you are getting the BEST the market affords, and at PRICES that are BOTTOM.

"THE HUSTLER."



It will pay you to have our catalogue and new prices on the following:

Lawn Rakes, Garden Rakes,
Curry Combs,
Lawn Sprinklers. Post Hole Diggers.

And Now The Continental Lawn Mower!

Not an ounce

of poor material

in its construction.

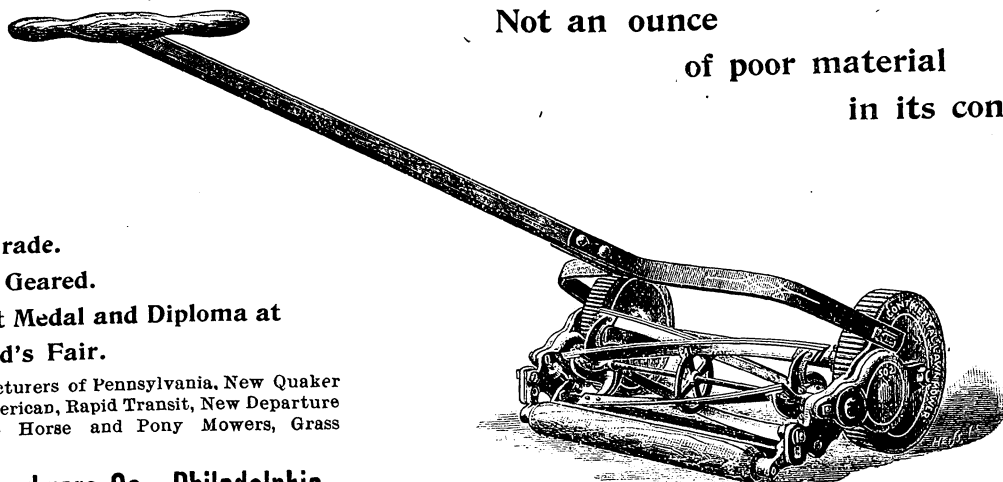
High Grade.

Double Geared.

Highest Medal and Diploma at
World's Fair.

Also manufacturers of Pennsylvania, New Quaker City, Great American, Rapid Transit, New Departure Mowers. Also Horse and Pony Mowers, Grass Catchers, &c.

Supplee Hardware Co., Philadelphia.



SHOWING STYLE OF LOW WHEEL.

McGuire's ♦ Diamond.

MANUFACTURED BY

Dille & McGuire Mfg. Co.,
RICHMOND, IND., U. S. A.

PRICE-LIST.

Wheels, 8 Inches High. Cutter, 5½ Inches Diameter.

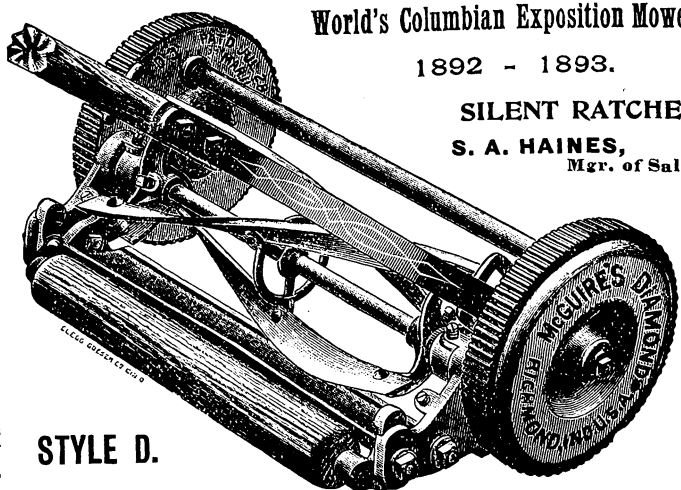
LENGTH.	LIST.	Discount to the
10 Inch	\$13.00	Trade,
12 "	14.00	70 per cent.,
14 "	15.00	F.O.B. Factory.
16 "	16.00	
18 "	17.00	

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This is the Mower contracted for by the Chief of Construction at the Columbian Exposition; was used on the lawns at the World's Fair grounds during the preparatory season of 1892, and being approved by the Landscape Architects, was adopted exclusively for 1893.

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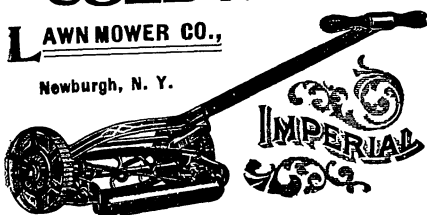
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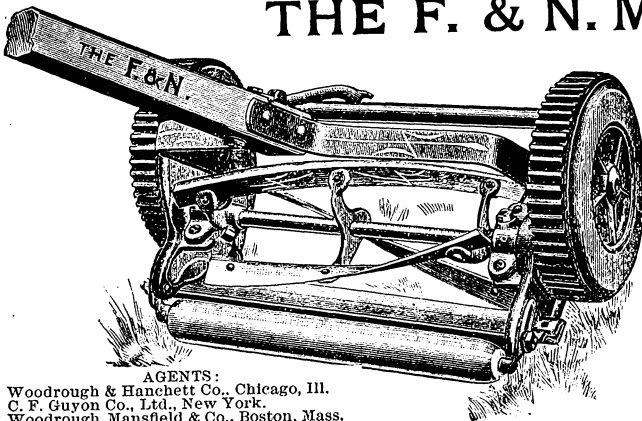
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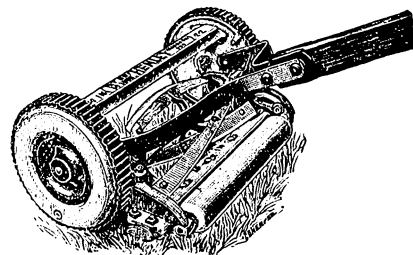
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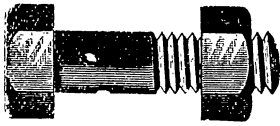
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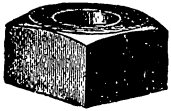
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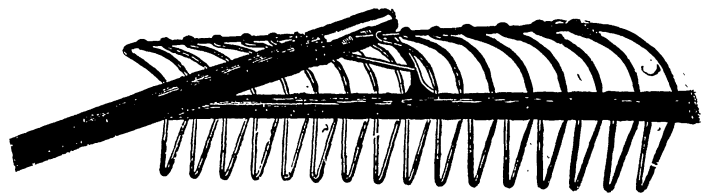
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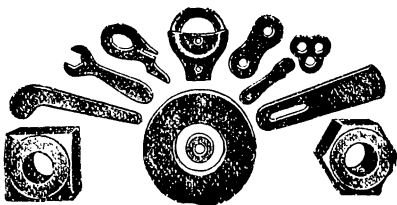
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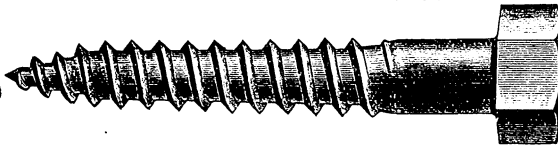
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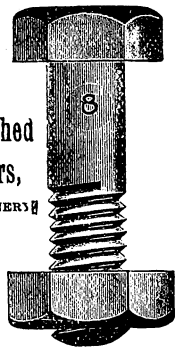
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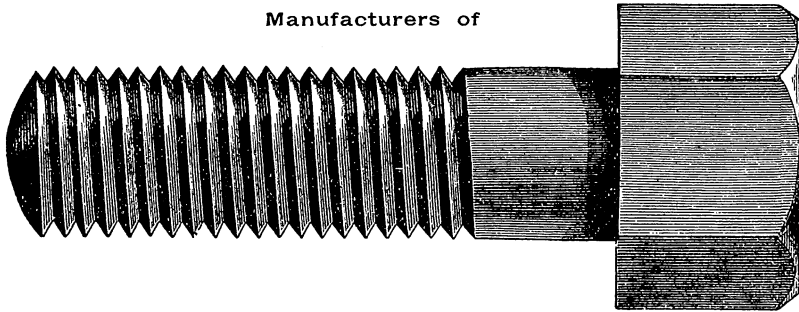
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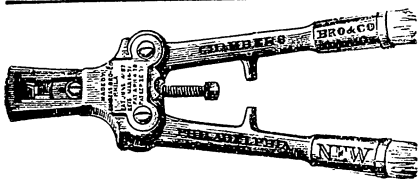


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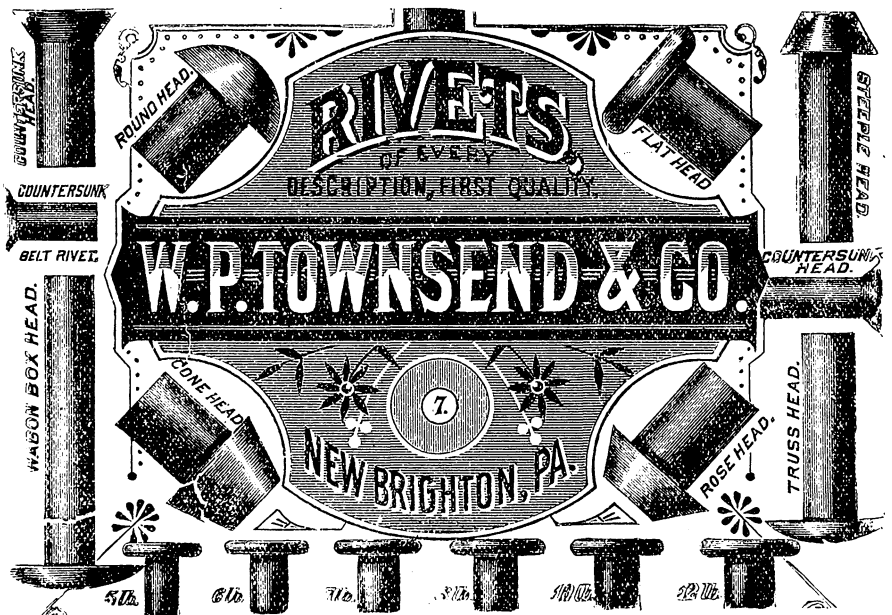
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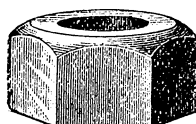
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- Edge Tools. Makers of.**
Suck Bros., Millbury, Mass.
Plumb, Fayette R., Philadelphia, Pa.
White, L. & J. J. Co., Buffalo, N. Y.
- Edging Shears.**
Dille & McGuire Mfg. Co., Richmond, Ind.
- Egg Beaters.**
North Bros. Mfg. Co., Philadelphia.
- Electric Bells and Supplies.**
Ostrander, W. R. & Co., 204 Fulton St., New York
Wollensak, J. F., Chicago, Ill.
- Elevators. Makers of.**
Link-Belt Engineering Co., Phila., Pa.
Morse, Williams & Co., Phila., Pa.
- Emery and Emery Wheels.**
N. Y. Belting & Packing Co., Ltd., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester, Mass.
Sterling Emery Wheel Co., 174 Fulton St., New York.
Sturtevant Mill Co., Boston, Mass.
- Emery Wheel Dressers.**
Bay State Stamping Co., Worcester, Mass.
- Enameled Steel Ware.**
St. Louis Stamping Co., St. Louis, Mo.
- Enamels.**
Nubian Iron Enamel Co., Cragin, Ill.
- Engineers and Contractors.**
Alkon Henry, Pittsburgh, Pa.
Artificial Gas Engineering Co., Pittsburgh, Pa.
Herrick, J. A., 284 Pearl St., N. Y.
Kennedy, Julian, Pittsburgh, Pa.
Laughlin, Alex. & Co., Pittsburgh, Pa.
Lean, D. R., Co., Pittsburgh, Pa.
McClure, Amster & Co., Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineers Co., Pittsburgh, Pa.
Smythe, S. R. Co., Incorporated Pittsburgh, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.
- Engines. Gas.**
Otto Gas Engine Works, Phila., Pa.
Rollason Gas Engine, Havemayer Bldg., N. Y.
- Engines. Steam. Makers of.**
Bass Foundry & Machine Works, Ft. Wayne, Ind.
Buckeye Engine Co., Salem, O.
Erie Engine Works, Erie, Pa.
Korwalk Iron Works Co., So. Norwalk, Conn.
Penna. Diamond Drill & Mfg. Co., Birdsboro, Pa.
Phila. Engineering Works, Phila., Pa.
Phoenix Iron Wks. Co., Meadville, Pa.
Southward Foundry and Machine Co., Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.
- Exhaust Tumblers.**
Sweetser, W. A., Brockton, Mass.
- Expansion Belts.**
Boone, W. C. Mfg. Co., Boonton, N. J.
Church, Isaac, Toledo, O.
Steward & Romaine Mfg. Co., Phila., Pa.
- Faucets, Self-Measuring.**
Lane Bros., Poughkeepsie, N. Y.
- Faucets. Wooden. Makers of.**
John Sommer's Son, Newark, N. J.
- Feed-Water Heaters.**
Davis, I. B. & Son, Hartford, Conn.
Goubert Mfg. Co., 32 Cortlandt St., N. Y.
Harrison Safety Boiler Wks., Phila., Pa.
National Pipe Bending Co., New Haven, Conn.
Taunton Locomotive Mfg. Co., Taunton, Mass.
Webster, Warren & Co., Camden, N. J.
Whitlock Coil Pipe Co., Elmwood, Conn.
- Fence Ratchet.**
Stauffer, J., Dayton, Ohio.
- Fencing. Iron and Wire.**
Sarnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Clinton Wire Cloth Co., Clinton, Mass.
Gilbert & Bennett Mfg. Co., 42 Cliff St., Kilmer Mfg. Co., Newburgh, N. Y.
Mast, Foss & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.
- File Cards.**
Frasse Co., 19 Warren St., N. Y.
- Files. Importers of.**
Moss, F. W., 80 John, N. Y.
- Files and Rasps. Manufacturers of.**
Arcade File Works, Anderson, Ind.
Bunker & White, Troy, N. Y.
- Barnett, G. & H., 41 & 43 Richmond St., Phila.**
McCauley File Co., Philadelphia.
Nicholson File Co., Providence R. I.
- Fire Brick. Makers of.**
Borgner, Cyrus, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston, St. McLeod & Henry Co., Troy, N. Y.
Maurer, J. & Son, 430 E. 23d, N. Y.
Ostrander Fire Brick Co., Troy, N. Y.
Solomon, Joo. M., Wilmington, Del.
vaentine, M. L. & Bro., Woodbridge, Mass.
- Fishing Tackle.**
Dane, Stoddard & Kendall, Boston, Mass.
- Flint.**
Crystal Mills Co., Chester, Mass.
- Flint and Emery Paper.**
Baeder, Adamson & Co., Phila., Pa.
- Flue Cleaners.**
Mackey, Jas. T., St. Louis, Mo.
- Fodder Cutters.**
Silver Mfg. Co., Salem, O.
- Forges, Portable. &c.**
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
sturtevant, B. F. Co., Boston, Mass.
- Forgings, Iron and Steel.**
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Steel-Cambria Iron Co., Johnstown, Pa.
Frankford Steel Co., Phila., Pa.
Scranton Forging Co., Scranton, Pa.
U. S. Projectile Co., Brooklyn, N. Y.
- Foundry Facings.**
Dixon, Jos., Crucible Co., Jersey City, N. J.
s. Oermayer Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cin., O.
Solomon, Jno. M., Wilmington, Del.
- Foundry Middles.**
Estey, W. S., 65 Fulton, N. Y.
- Foundry Supplies.**
Colliau, Victor, Detroit, Mich.
Diamond Clamp & Flask Co., Richmond, Ind.
s. Oermayer Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cin., O.
- Friction Clutches.**
Keystone Clutch & Mch. Wks., Phila., Pa.
Moore & White Co., Philadelphia, Pa.
- Friction Cone.**
Evans Friction Cone Co., Boston, Mass.
- Galvanizing Kettles.**
Sands, Thos., Nashua, N. H.
- Gas Producers.**
Wood, R. D. & Co., Philadelphia, Pa.
- Gas & Steam Fitters' Supplies.**
Pancoast, Henry B. & Co., Phila., Pa.
- Gauge, Rolling Mill.**
Haines Gauge Co., Philadelphia, Pa.
- Gear Cutters.**
D. E. Whiton Mach. Co., New London, Conn.
- Gears.**
Boston Gear Works, Boston, Mass.
Gleason Tool Co., Rochester, N. Y.
rouse, Root, & son Co., Baltimore, Md.
U. S. Projectile Co., Brooklyn, N. Y.
- Glass Cutters.**
Monce, S. G., Bristol, Conn.
- Glue.**
Baeder, Adamson & Co., Phila., Pa.
Dodd, A. W. & Co., Gloucester, Mass.
Gussia Cement Co., Gloucester, Mass.
- Granite Ware.**
St. Louis Stamping Co., St. Louis, Mo.
- Grass Catchers.**
Supple Hardware Co., Phila., Pa.
- Grinding and Polishing Machines.**
Norton Emery Wheel Co., Worcester, Mass.
- Grindstone Dressing Machinery.**
Blake, J., Johnson, Waterbury, Conn.
- Grindstones.**
Cleveland Stone Co., Cleveland, O.
- Gunpowder. Makers of.**
Lafin & Rand Powder Co., 29 Murray St., N. Y.
- Hand Carts.**
Lansing Wheelbarrow Co., Lansing, Mich.
- Handles.**
New York Mallet and Handle Wks., 456 E. Houston St., N. Y.
- Hangers, Door.**
Coburn Trolley Track Mfg. Co., Holyoke, Mass.
- Lane Bros., Poughkeepsie, N. Y.**
Victor Mfg. Co., Newburyport, Mass.
- Hardware Comm'n Merchants.**
Doseher, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers St., N. Y.
Graham, John H. & Co., 111 Chambers St., New York.
Jacobus, W. H., 90 Chambers, N. Y.
- Hardware Manufacturers.**
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.
- Hardware Mfrs. Agents.**
Bingham, W. Co., Cleveland, O.
Clarke, Thomas, St. John, N. B.
Graham, John H. & Co., 113 Chambers, McCos, J. F. Co., 26 Warren St., N. Y.
Sickles, Sweet & Lyon, 35 Barclay, N. Y.
- Hardware Specialties.**
Acme Shear Co., Bridgeport, Conn.
Bergner Bros., Philadelphia, Pa.
Enterprise Mfg. Co., Philadelphia, Pa.
Ette & Henker Mfg. Co., St. Louis, Mo.
Haines & Zimmerman, Phila., Pa.
Johnson, S. C. Racine, Wis.
Knapp & Cowles Mfg. Co., Bridgeport, Conn.
New Britain Hdw. Mfg. Co., New Britain, Conn.
North Bros. Mfg. Co., Philadelphia, Pa.
Peabody & Parks, Troy, N. Y.
Scranton & Co., New Haven, Conn.
Shepard, Sidney & Co., Buffalo, N. Y.
Welland, Chas., 149 Chambers St., N. Y.
Wilson, J. Fred, Worcester, Mass.
- Harness Snaps.**
Covert Mfg. Co., West Troy, N. Y.
Coverts' Saddlery Wks., Farmer, N. Y.
Fitch, W. & E. T., New Haven, Conn.
- Holisting Machines.**
Box, Alfred & Co., 314 Green, Phila.
Jrown Holisting & Conveying Mch. Co., Cleveland, Ohio.
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E., Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris & Beekley, Philadelphia.
Moore Mfg. & Fdy. Co., Milwaukee, Wis.
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Spindel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.
- Hollow Ware.**
Bronson Supply Co., Cleveland, Ohio.
Cleveland Stamping & Tool Co., Cleveland, O.
St. Louis Stamping Co., St. Louis, Mo.
- Hollow Ware, Aluminum.**
Illinois Pure Aluminum Co., Lemont, Ill.
- Horse Nails. Makers of.**
Capewell Horse Nail Co., Hartford, Conn.
National Horse Nail Co., Vergennes, Vt.
Putnam Nail Co., Neponset, Boston, Mass.
- Horse and Mule Shoes. Makers of.**
Bryden Horse Shoe Co., Catsasauqua, Pa.
Burden Iron Co., Troy, N. Y.
Crescent Horse Shoe & Iron Co., Max Meadows, Va.
Diamond State Iron Co., Wilmington, Del.
Old Dominion Iron & Nail Works Co., Richmond, Va.
Phoenix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
Shoenberger & Co., Pittsburgh, Pa.
Standard Horse Shoe Co., Boston, Mass.
- Hose.**
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.
- Hydrants, &c.**
McLean, John, 296 & 298 Monroe, N. Y.
- Hydraulic Forging.**
U. S. Projectile Co., Brooklyn, N. Y.
- Hydraulic Jacks.**
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.
- Ice-Cream Freezers.**
Clement & Dunbar, Phila., Pa.
North Bros. Mfg. Co., Phila., Pa.
Packer, C. W., Philadelphia, Pa.
White Mountain Freezer Co., Nashua, N. H.
- Injectors.**
Eynon-Evans Mfg. Co., Philadelphia, Pa.
Jenkins Bros., New York
- Insurance. Boiler.**
Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
- Iron and Steel, Swedish.**
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
- Iron Commission Brokers.**
Corning, Edw. & Co., 29 B'way, N. Y.
Cotton, Barclay W. & Co., Phila.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
- Hoffman, J. W. & Co., Philadelphia.**
Levia, Henry Co., Philadelphia.
Keesley, Jerome & Co., Philadelphia.
Lea, J. Tattall & Co., Philadelphia.
Mohr, J. J., 480 Walnut, Philadelphia.
Pilling & Crane, Philadelphia, Pa.
Wister, L. & R. & Co., Phila., Pa.
- Iron Ore.**
Naylor & Co., 45 Wall, N. Y.
Samuel, Frank, Philadelphia, Pa.
- Iron, Merchants.**
Barnes, C. K. & Co., Philadelphia, Pa.
Borden & Lovell, 70 West, N. Y.
Bussentius & Cunliffe, Philadelphia.
Corning Edw. & Co., 29 B'way, N. Y.
Cox, Justice, Jr., Philadelphia.
Cotton, Barclay W. & Co., Phila.
Hoffman, J. W. & Co., Philadelphia.
Leonard, J., 446 West St., N. Y.
Naylor & Co., 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm St., N. Y.
Pierson & Co., 29 Broadway, N. Y.
Thomson, W. H. & Co., Phila., Pa.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.
- Iron, Importers.**
Abbott Wheelock & Co., N. Y. and Boston
Lundberg, Gustaf, Boston, Mass.
- Iron, Sheet. Manufacturers of.**
Cambridge Iron & Steel Co., Cambridge, Ohio
St. Louis Stamping Co., St. Louis, Mo.
W. Dewees Wood Co., Lima, Pa.
port, Pa.
- Ironwork. Ornamental.**
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foss & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.
- Keys.**
Wollensak, J. F., Chicago, Ill.
- Ladders, Rolling.**
Coburn Trolley Track Mfg. Co., Holyoke, Mass.
- Ladles.**
Detroit Fdy. Equipment Co., Detroit, Mich.
- Lamps.**
Plume & Atwood Mfg. Co., New York.
- Lamp Stoves.**
Glazier Stove Co., Chelsea, Mich.
Plume & Atwood Mfg. Co., 18 Murray Street, New York.
- Lanterns.**
Steam Gauge & Lantern Co., Syracuse, N. Y.
- Lathes.**
Draper Machine Tool Co., Worcester, Mass.
Johnson, Israel H., Jr., & Co., Philadelphia, Pa.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.
- Lathing, Wire.**
Clinton Wire Cloth Co., Clinton, Mass.
N. J. Wire Cloth Co., Trenton, N. J.
Wright & Clinton Wire Cloth Co., Worcester, Mass.
- Laundry Machines.**
Johnson, S. C., Racine, Wis.
- Lawn Mowers.**
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburgh, N. Y.
Coldwell Lawn Mower Co., Newburgh, N. Y.
Dille & McGuire Mfg. Co., Richmond, Ind.
Enterprise Mfg. Co., Philadelphia, Pa.
F. & S. Mfg. Co., Richmond, Ind.
Henley, M. C., Richmond, Ind.
Mast, Foss & Co., Springfield, O.
Philadelphia Lawn Mower Co., Philadelphia, Pa.
Stearns, E. C. & Co., Syracuse, N. Y.
Supple Hdw. Co., Phila., Pa.
- Lawn Rakes.**
Gibbs Mfg. Co., Canton, Ohio.
Konler, F. E. & Co., Canton, O.
Schaeffer & Co., Dayton, Ohio.
- Lawn Sprinklers.**
Ette & Henker Mfg. Co., St. Louis.
Gibbs Mfg. Co., Canton, Ohio.
McGowan, John H. Co., Cincinnati, O.
Portland Lawn Sprinkler Co., Portland, Me.
- Lemon Squeezers.**
Ripley Mfg. Co., Unionville, Conn.
- Letters and Figures, Metallic.**
White, A. A. & Co., Providence, R. I.
- Letters, Paper.**
Tablet & Ticket Co., Chicago, Ill.
- Levels.**
Davis & Cook, Watertown, N. Y.
Richardson, C. F., & Son Athol, Mass.
- Locks & Knobs. Manufacturers of.**
Deitz, A. E., 97 Chambers, N. Y.
Reading Hdw. Co., Reading, Pa.
Smith & Egge Mfg. Co., Bridgeport, Conn.
Yale & Towne Mfg. Co., Stamford, Conn.
- Lubricants.**
Dixon, Jos., Crucible Co., Jersey City, N. J.

Machinery.

Am. Tool Wks., Cleveland, Ohio.
 Barnes, W. F. & John, Rockford, Ill.
 Schenck, Miles & Co., Philadelphia, Pa.
 Sigelow, C. E., 45 Day, N. Y.
 Bignall & Keeler Mfg. Co., St. Louis.
 Birmingham Iron Foundry, Birmingham, Conn.
 Bliss, E. W. Co., Brooklyn, N. Y.
 Boret, Jno. L., Flushing, N. Y.
 Bridgeport Mch. Tool Works, Bridgeport, Conn.
 Briggs, Marvin, 12 Broadway, N. Y.
 Carlin's Sons, Thos., Allegheny, Pa.
 Chan. Milling Mch. Co., Cincinnati, Ohio.
 Clapp, Geo. M., agt., 74 Cortlandt, N. Y.
 Detrick & Harvey Mch. Co., Baltimore, Md.
 Fitchburg Mch. Works, Fitchburg, Mass.
 Garvin Mch. Co., Leight & Canal Sts.
 Gould & Eberhardt, Newark, N. J.
 Hamilton Mch. Tool Co., Hamilton, O.
 Harrington, E. Son & Co., Phila., Pa.
 Henderer, A. L., Wilmington, Del.
 Hender Machine Co., Torrington, Ct.
 Still, Clarke & Co., Boston, Mass.
 Howards & Morse, 45 Fulton St., N. Y.
 Hubert-Rogers Mch. Co., South Sudbury, Mass.
 Johnson, Israel H., Jr., & Co., Phila.
 Jones & Lamson Mch. Co., Springfield, Vt.
 Lovegrove & Co., Philadelphia, Pa.
 McCabe, J. J., 68 Cortlandt, N. Y.
 Machinists Supply Co., Rochester, N. Y.
 Manville, E. J. Mch. Co., Waterbury, Conn.
 Newark Mch. Tool Works, Newark, N. J.
 New Haven Mfg. Co., New Haven, Conn.
 Niles Tool Wks., 188 Liberty St., N. Y.
 Pittsburgh Mfg. Co., Pittsburgh, Pa.
 Place, Geo., 120 Broadway, N. Y.
 Poole, Robt. & Son Co., Baltimore, Md.
 Powell Planer Co., Worcester, Mass.
 Pratt & Whitney Co., Hartford, Conn.
 Frontiers Tool & Supply Co., N. Y.
 Scranton Supply & Mch. Co., Scranton, Pa.
 Sellers, Wm. & Co., Phila.
 Seyfert's Sons L. F., Philadelphia, Pa.
 Steptoe, J. & Co., Cincinnati, O.
 Stow Flexible Shaft Co., Ltd., Phila.
 Toomey, Frank, Philadelphia, Pa.
 Wetherill, Robert & Co., Chester, Pa.
 Wickes Bx's., Saginaw, Mich.
 Wilson, W. A., Rochester, N. Y.

Machinery for Hardware Manufacture.

Adt, Jno. & Son, New Haven, Conn.

Machine Knives.

Loring Coes & Co., Worcester, Mass.

Machine Screws.

New Britain Hdw. Mfg. Co., New Britain, Conn.

Machine Tools.—See Machinery.**Machine Work.**

Papping, J., 58th St., & 11th Ave., N. Y. City.

Machinists' Scales.

Coffin & Leighton, Syracuse, N. Y.
 Starrett, L. S., Athol, Mass.
 Valentine Tool Co., Hartford, Conn.

Machinists' Tools and Supplies.

King, J. M. & Co., Watford, N. Y.
 Sellers, Wm. & Co., Inc., Phila.

Mallets.

N. Y. Mallet & Handle Works, N. Y.

Mangles.

Johnson, S. C., Racine, Wis.

Measuring Tapes.

Lufkin Rule Co., Saginaw, Mich.

Mechanical Instruction.

Correspondence School of Mechanics, Scranton, Pa.

Metals.

Fearing, Wm. S., 100 Chambers, N. Y.
 Hendricks Bros., 45 Cliff, N. Y.
 Naylor & Co., 45 Wall, N. Y.

Metal Brokers.

American Metal Co., N. Y.

Metalurgists.

Britton, J., Blodgett, Phil.

Milk Can Trimmings.

Shepard, Sidney & Co., Buffalo, N. Y.

Milling Machines.

Cin. Milling Mch. Co., Cincinnati, Ohio.

Mining Knives.

Palmer Hdw. Mfg. Co., Troy, N. Y.

Mine Lamps.

Darby, Edw. & Sons, Phila., Pa.
 Leonard, B. E., Scranton, Pa.

Mining Screens.

Harrington & King Perforating Co., Chicago, Ill.
 Howard & Morse, 45 Fulton, N. Y.

Models, Makers of

Franklin, H. H. Mfg. Co., Syracuse, N. Y.
 Ideal Machine Works, Hartford, Conn.
 Rhodes, L. E. Co., Hartford, Conn.

Molding Sand.

Obermayer, S. Co., Cincinnati, O.

Motors, Water and Electric.

O. & C. Electric Co., 402 and 404 Greenwich St., N. Y.
 Dallett, Thos. H. & Co., Phila., Pa.

Nail Bins.

Stacy Mfg. Co., Dayton, Ohio.

Nail Machinery.

Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nail Pullers.

Scranton & Co., New Haven, Conn.

Nails (Out) and Spikes.

Borden & Lovell, 70 West, N. Y.
 Cumberland Nail & Iron Co., Phila.
 Oxford Iron Co., 81 Washington St., Pottstown, Pa.
 Pottstown Iron Co., Pottstown, Pa.
 Riverside Iron Wks., Wheeling, W. Va.

Narrow Shapes, Rollers of.

Adams, William & Harvey, Frankford, Philadelphia

Novelty Manufacturers.

Franklin, H. H. Mfg. Co., Syracuse, N. Y.
 Ideal Machine Works, Hartford, Conn.

Net Machines.

Onham Nut Mch. Co., Unionville, Ct.

Nuts, Bolts, &c., Makers of.

American Bolt Co., Lowell, Mass.
 American Screw Co., Providence, R. I.
 Blake & Johnson, Waterbury, Conn.
 Tascell, Wm. H. Co., Pawtucket, R. I.
 Mt. Carmel Bolt Co., Mt. Carmel, Pa.
 Pennsylvania Bolt & Nut Co., Lebanon, Pa.
 Port Chester Bolt and Nut Co., Port Chester, N. Y.
 Russell, Burdall & Ward, Port Chester, N. Y.
 Sternbergh, J. H. & Son, Reading, Pa.
 Wilson, J. Fred, Worcester, Mass.
 Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.

Wilmet & Hobbs Mfg. Co., Bridgeport, Conn.

Oil Stones.

Pike Mfg. Co., Pike Station, N. H.

Oil Stoves.

Glasier Stove Co., Chelsea, Mich.

Ores.

Wister, Francis, Philadelphia, Pa.

Ox Shoes.

Scranton Forging Co., Scranton, Pa.

Packing.

Morrison, Robt., St. Louis, Mo.
 N. Y. Beltine & Packing Co. Ltd., N. Y.

Paddlocks.

Aimes Sword Co., Chicopee, Mass.
 Fraim, E. T., Lancaster, Pa.
 Hillebrand & Wolf, Phila., Pa.

Pails.

Richmond Cedar Wks., Richmond, Va.

Paint Burners.

Dangler Stove & Mfg. Co., Cleveland, O.

Paint Cans.

Wilmet & Hobbs Mfg. Co., Bridgeport, Conn.

Pants Stretcher.

Covert Mfg. Co., West Troy, N. Y.

Parent Mollitors.

Butler, C. N., Phila., Pa.
 Lawson & Howson, Phila. & Wash'ton.

Perforated Metal.

Clinton Wire Cloth Co., Clinton, Mass.
 Harrington & King Perforating Co., Chicago, Ill.
 Hendrick Mfg. Co., Ltd., Carbondale, Pa.

Phosphor Bronze.

Phosphor Bronze Smelting Co., Limited, Philadelphia.

Phosphor Tin.

Crescent Phosphorized Metal Co., Philadelphia, Pa.

Pipe & Naumann.

516 Pearl, N. Y.

Picks and Mattocks.

Turno, Fayette K., Philadelphia, Pa.

Pig Forceps.

Reimers, J. N., Davenport, Ia.

Pig Iron.

Houston, C. B. & Co., Philadelphia, Pa.
 Montour Iron & Steel Co., Danville, Pa.
 Naylor & Co., 45 Wall, N. Y.
 Pilling & Crane, Philadelphia, Pa.
 Samuel, Frank, Philadelphia, Pa.

Pig Iron Storage.

Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pig Lead.

Missouri Metal Co., St. Louis, Mo.

Pile Drivers.

Vulcan Iron Wks., Chicago, Ill.

Pipe Bent.

National Pipe Bending Co., New Haven

Pipe Cutting and Threading Machines.

Bignall & Keeler Mfg. Co., St. Louis, Mo.
 Merrill Mfg. Co., Toledo, O.
 Hancock Henry B. & Co., Philadelphia.
 Saunders Sons, D., Yonkers, N. Y.

Pipe Grips.

Prentiss Vise Co., 44 Barclay, N. Y.

Pipes, Fittings, &c., Makers of.

McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas, Makers of.

Cumberland Nail & Iron Co., Phila., Pa.
 Donaldson Iron Co., Emaus, Pa.
 Riverside Iron Works, Wheeling, W. Va.
 Wood, R. D. & Co., Philadelphia, Pa.

Plane Irons, Manufacturers of.

Stuck Bros., Milbury, Mass.

Planes, Manufacturers of.

Stanley Rule & Level Co., N. Y.

Plated Ware.

Boarman, L. & Son, New Haddam, Ct.
 Holmes & Edwards Silver Co., Bridgeport, Conn.
 Rogers, Wm. Mfg. Co., Hartford, Ct.

Plate, Iron and Steel, Mfrs of.

Etna-Standard Iron & Steel Co., Bridgeport, O.
 Lukens Iron & Steel Co., Coatesville, Pa.

Mahoning Valley Iron Co., Youngstown, Ohio.

Moorehead-McLean Co., Pittsburgh, Pa.
 Mollvain & Sons, Reading, Pa.
 Pottstown Iron Co., Pottstown, Pa.
 Pottsville Iron & Steel Co., Pottsville, Pa.
 Singer, Nimick & Co., Pittsburgh, Pa.
 The Mahoning Valley Iron Co., Youngstown, O.
 Wellman Iron & Steel Co., Thurlow, Pa.
 Wood Alan Co., Philadelphia.

Plating, Nickel, Brass and Silver.

Wilmet & Hobbs Mfg. Co., Bridgeport, Conn.

Plow Shares.

Star Mfg. Co., Carpentersville, Ill.

Polishing Machines.

Watson & Stillman, 204 E. 43d, N. Y.

Post Hole Diggers.

Buckeye Mfg. Co., Union City, Ind.
 Gibbs Mfg. Co., Canton, Ohio.
 Graham, Jno. H. & Co., 113 Chambers St., N. Y.
 Wister, L. & R. & Co., Philadelphia, Pa.

Poultry Nettings.

Barnum, E. T., Detroit, Mich.
 Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
 N. J. Wire Cloth Co., Trenton, N. J.
 Silver Finish,
 Tyler Wire Wks. Co., W. S., Cleveland, O.
 Wright & Colton Wire Cloth Co., Worcester, Mass.

Powder.

Lafin & Rand Powder Co., 29 Murray New York Powder Co., 62 Liberty St., N. Y.

Power Hack Saws.

Millers Falls Co., 93 Reade St., N. Y.

Power Hammers.

Hensel & Eisenhardt, Philadelphia.
 Dupont Mfg. Co., St. Johnsbury, Vt.
 Jenkins & Linzie, Bellefonte, Pa.
 Long & Aljattatter Co., Hamilton Ohio
 Scranton & Co., New Haven, Conn.

Presses, Dies, &c.

E. W. Bliss Co., Brooklyn, N. Y.
 Crosby, G. A. & Co., Chicago, Ill.
 Stark Mch. & Tool Co., Buffalo, N. Y.
 Stiles & Parker Press Co., Brooklyn, N. Y.
 Waterbury Mch. Co., Waterbury, Conn.

Presses, Power, Makers of.

Bliss, E. W. Co., Brooklyn, N. Y.
 Manville, E. J. Mch. Co., Waterbury, Ct.
 Merriman, A. H., Meriden.
 Stark Mch. & Tool Co., Buffalo, N. Y.
 Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pruners.

Topfitt & Ely Co., Elyria, Ohio.

Pulleys.

Keystone Clutch Mch. Wks., Phila., Pa.
 Lake, J. H. & D. Co., Massillon, Ohio.

Pumping Machinery.

Dean Bros. Steam Pump Works, Indianapolis, Ind.
 Hooker-Colville Steam Pump Co., St. Louis, Mo.
 Motowan, J. H. & Co., Cincinnati, O.
 Maslin, J. & Son, Jersey City, N. J.
 Norwalk Iron Wks. Co., So. Norwalk, Conn.
 Southwark Fdy. & Mch. Co., Phila., Pa.
 Valley Pump Wks., Easthampton, Mass.
 Worthington, Henry R., 86 & 88 Liberty St., N. Y.

Pumps, Makers of.

Bellevue Pump Co., Bellevue, Iowa.
 Deering Co., Salem, O.
 Douglas, W. B., Middletown, Conn.
 Mast, P. O. & Co., Springfield, O.
 Myers, F. E. & Bro., Ashland, O.

Punches and Shears, Hand and Power.

E. W. Bliss Co., Brooklyn, N. Y.
 Cookburn Barrow & Mch. Co., Jersey City, N. J.
 Crosby, G. A. & Co., Chicago, Ill.
 Henderer, A. L., Wilmington, Del.
 Long & Aljattatter Co., Hamilton, Ohio.
 Stark Mch. & Tool Co., Buffalo, N. Y.
 Stiles & Parker Press Co., Brooklyn, N. Y.
 Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
 Watson & Stillman, 204 E. 43d, N. Y.

Rails, Old and New.

Perry, W. H. & Co., Providence, R. I.

Rat and Mouse Traps.

Ester, W. S., 65 Fulton, N. Y.
 Ripley Mfg. Co., Unionville, Conn.

Razors.

Electric Cutlery Co., 113 Chambers, N. Y.
 J. R. Torrey Razor Co., Worcester, Mass.

Reels.

Hendryx, A. B. Co., New Haven, Conn.

Refrigerator Door Fasteners.

Conroy, F. J. & Co., Philadelphia.

Refrigerators.

Challenge Corn Planter Co., Grand Haven, Mich.

Rivets.

Blake & Johnson, Waterbury, Conn.
 Boyce Rivet Co., Muncie, Ind.
 Burden Iron Co., Troy, N. Y.
 Cobb & Drew, Plymouth, Mass.
 Sternbergh, J. H. & Son, Reading, Pa.
 Townsend, W. P. & Co., New Brighton, Pa.

Riveting Machines.

Adt, Jno. & Sons, New Haven, Conn.

Rock Drills.

Sand Drill Co., 23 Park Place, N. Y.

Rolling Mill Machinery

Birmingham Iron Fdry, Birmingham, Conn.
 Booth, The Lloyd Co., Youngstown, O.
 Leechburg Foundry & Mch. Co., Pittsburgh, Pa.
 Mahoning Fdry & Mch. Co., Danville, Pa.
 Morgan Construction Co., Worcester, Mass.
 Robinson-Rea Mfg. Co., Pittsburgh.
 Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
 Trachewy Mfg. Co., Pittsburgh, Pa.
 Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Roll Lathes.

Totten & Hogg Iron & Steel Fdry Co., Pittsburgh, Pa.

Rolls, Chilled, Sand and Steel.

Booth, The Lloyd Co., Youngstown, O.
 Harrison, A. Fdry Co., Pittsburgh, Pa.
 Robinson-Rea Mfg. Co., Pittsburgh, Pa.
 Seaman, Steeth, Black, Pittsburgh.
 Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.

Cambridge Roofing Co., Cambridge, O.
 Cincinnati Corrugating Co., Piqua, O.
 Johns, H. W. Mfg. Co., 37 Maiden Lane, N. Y.
 Iron Roofing & Corrugating Co., Jersey City, N. J.

Rope and Web Goods.

Covert Mfg. Co., West Troy, N. Y.
 Covert's Saddlery Wks., Farmer, N. Y.

Rope Wheels.

Cresson, Geo. V. Co., Philadelphia, Pa.

Rowlocks.

Newhall Ship Chandlery Co., 105 Chambers St., N. Y.

Rubber Goods.

Canfield, H. O., Bridgeport, Conn.

Rules, Manufacturers of.

Lufkin Rule Co., Saginaw, Mich.
 Stanley Rule & Level Co., 29 Chambers, N. Y.

Rust Preventive.

Bridgeport Gun Implement Co., 318-315 Broadway, N. Y.

Sand Paper.

Baeder, Adamson & Co., Phila., Pa.

Sash Balances.

Calwell Mfg. Co., Rochester, N. Y.
 Pullman Sash Balance Co., Rochester, N. Y.
 Vanderbilt Sash Balance Co., Canandaigua, N. Y.

Sash Cords and Chains.

Morton, Thos., 65 Elizabeth, N. Y.
 Ossawa Mills Co., Norwich, Conn.
 Samson Cordage Works, Boston, Mass.
 Smith & Egge, Mfg. Co., Bridgeport.

Sash Locks.

Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.

Palmer Hardware Mfg. Co., Troy, N. Y.

Sash Weights.

Brown, E. E. & Co., Philadelphia, Pa.

Saw Filing Machines.

Diston, Henry & Sons, Philadelphia, Pa.

Saws, Makers of.

Diston, Henry & Sons, Phila., Pa.
 National Saw Co., 98 Reade St., N. Y.
 Simonds Mfg. Co.,

- Allentown Rolling Mill.** Allentown, Pa.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Passaic Rolling Mill Co., Paterson, N.J.
Pottsville Iron & Steel Co., Pottsville, Pa.
Roberts, A. & P. Co., Phila., Pa.
The Phoenix Iron Co., Phila., Pa.
Tudor Iron Works, St. Louis, Mo.
- Shears and Scissors.**
Aame Shear Co., Bridgeport, Conn.
Heinrichs, R. Sons Co., Newark, N. J.
- Sheet Iron and Steel, Manufacturers of.**
Atlas-Standard Iron and Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio.
Chess Bros., Pittsburgh, Pa.
Mahoning Valley Iron Co., Livingston, Ohio.
Moorehead-McCleane Co., Pittsburgh, Pa.
Pierson & Co., 29 Broadway, N. Y.
Singer, Nimick & Co., Ltd., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.
- Sheet Metal Work.**
Clark & Cowles, Plainville, Conn.
- Sheet Zinc.**
Matthiessen & Hegeler Zinc Co., La Salle, Ill.
- Shelf Brackets.**
Koch, A. B. & Co., Peoria, Ill.
- Sinks.**
Douglas, W. & B., Middletown, Conn.
- Skates, Ice.**
Lovell, Jno. P. Arms Co., Boston, Mass.
Winslow, Sam'l., Skate Mfg. Co., Worcester, Mass.
- Skates, Roller.**
Kenley, M. C., Richmond, Ind.
Winslow, Sam'l., Skate Mfg. Co., Worcester, Mass.
- Smelting Works.**
Reeves, Paul S., 760 S. Broad, Phila.
- Soldering Coppers.**
Clendenin Bros., Baltimore, Md.
Covert Mfg. Co., West Troy, N. Y.
- Speaking Tubes.**
Ostrander, W. R. & Co., 204 Fulton St., N. Y.
Wollensak, J. F., Chicago, Ill.
- Specialties, Pat. Articles.**
Rhodes, L. E. Co., Hartford, Conn.
- Spelter.**
Matthiessen & Hegeler Zinc Co., La Salle, Ill.
Missouri Metal Co., St. Louis, Mo.
- Spoons and Forks.**
Boardman, L. & Son, New Haddam, Conn.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Bogers, The Wm. Mfg. Co., Hartford, Conn.
- Sporting Goods.**
Hartley & Graham, 313-315 E'way, N. Y.
- Springe.**
Dunbar Bros., Bristol, Conn.
Miller & Van Winkle, Brooklyn, N. Y.
Morgan Spring Co., Worcester, Mass.
Roland, Wm. & Harvey, Phila., Pa.
Sabin Machine Co., Montpelier, Vt.
Tuck Mfg. Co., Brockton, Mass.
Washburn & Moen Mfg. Co., Worcester, Mass.
Wolf, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
- Spring Hinges.**
Fullman Sash Balance Co., Rochester, N. Y.
Stover Mfg. Co., Freeport, Ill.
Van Wagoner & Williams Co., 14 Warren St., N. Y.
- Stamped Ware.**
Am. Stamping Co., 104 & 106 John St., New York.
- Stamping Works.**
Cleveland Stamping & Tool Co., Cleveland, O.
- Staples.**
Cobb & Drew, Plymouth, Mass.
Tiftchenner E. H. & Co., Binghamton, N. Y.
- Steam Gauges.**
Bristol Co., Waterbury, Conn.
- Steam Hammers, &c., Makers of.**
Denelt & Eisenhardt, Philadelphia.
Dudgdon, Richard, 24 Columbia Street, N. Y.
Trethewey Mfg. Co., Pittsburgh, Pa.
- Steam Heating.**
Webster Warren & Co., Camden, N. J.
- Steam Separators.**
Gouvert Mfg. Co., 32 Cortland St., N. Y.
Harison Safety Boiler Wks., Phila. Pa.
- Steel, Cold Rolled Strip.**
Superior Steel Co., Pittsburgh, Pa.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
- Steel Figures and Alphabets.**
Hofig, C. W., 52 Fulton St., N. Y.
Hogson & Pettis Mfg. Co., New Haven, Conn.
Wassrud, W., 61 Fulton St., N. Y.
Wolff, C. H., 177 William St., N. Y.
- Steel Importers.**
Abbott, Wheelock & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 9 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 83 John, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'dway, N. Y.
Wolf, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.
- Steel (Mushet's Special).**
Jones, B. M. & Co., Boston.
- Steel Manufacturers.**
Atlas-Standard Iron & Steel Co., Bridgeport, O.
Bethlehem Iron Co., S. Bethlehem, Pa.
Baker, Herman & Co., 103 Duane St., Carbon Steel Co., Pittsburgh, Pa.
Chester Steel Castings Co., Phila., Pa.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Eiken & Co., Hagen, Germany.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 91 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co., Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorehead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 43 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Superior Steel Co., Pittsburgh, Pa.
Wordlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
- Steel, Manufacturers' Agents.**
Barnes, O. K. & Co., Philadelphia, Pa.
Corning, Edw. & Co., 29 B'way, N. Y.
Lindsay, Jas. G. & Co., Phila., Pa.
Pierson & Co., 29 Broadway, N. Y.
- Steel Rails, Manufacturers of.**
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Johnstown, Pa.
Montour Iron & Steel Co., Danville, Pa.
Riverside Iron Wks., Wheeling, W. Va.
- Steel, Tool.**
Frankford Steel Co., Philadelphia, Pa.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
La Belle Steel Co., Pittsburgh, Pa.
- Step Ladders.**
Bicycle Step Ladder Co., Chicago, Ill.
Croissant, M., Albany, N. Y.
- Stocks and Dies.**
Armstrong Mfg. Co., Bridgeport, Conn.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunders' Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
- Stove Linings.**
Ostrander Fire Brick Co., Troy, N. Y.
- Stove Pipe Thimbles.**
Cheney, S. & Son, Manlius, N. Y.
- Street Lamps.**
Steam Gauge & Lantern Co., Syracuse, N. Y.
- Strops.**
Electric Cutlery Co., 113 Chambers, N. Y.
J. R. Torrey & Co., Worcester, Mass.
- Structural Iron Work.**
Lindsay, Jas. G. & Co., Phila., Pa.
- Sulphuric Acid.**
Matthiessen & Hegeler Zinc Co., La Salle, Ill.
- Tacks, Brads, Staples, &c.**
Atlas Tack Corporation, Boston, Mass.
Clendenin Bros., Baltimore, Md.
Cobb & Drew, Plymouth, Mass.
Grand Crossing Tack Co., Grand Crossing, Ill.
- Taps and Dies.**
Butterfield & Co., Derby Line, Vt.
Carpenter, J. M., Tap & Die Co., Pawtucket, R. I.
Manning, Maxwell & Moore, 111 Liberty St., N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
- Testing Laboratories.**
Riehle Bros. Testing Mch. Co., Philadelphia.
- Testing Machines.**
Riehle Bros. Testing Mch. Co., Phila.
- Theatrical Hardware.**
Wollensak, J. F., Chicago, Ill.
- Thill Springs.**
Frost Thill Spring Co., Boston, Mass.
Sabin Machine Co., Montpelier, Vt.
- Timber and Mineral Land.**
Robertson, E. Co., Cincinnati, O.
- Time Record.**
Scattergood, H. W., Phila., Pa.
- Tinning Process.**
Sands, Thomas, Nashua, N. H.
- Tin Plate Machinery.**
Lloyd Booth Co., Youngtown, Ohio.
- Tinware.**
Am. Stamping Co., 104 & 106 John St., New York.
- Tire Upsetters.**
Butts & Ordway, Boston, Mass.
- Toe Calks, Steel.**
Burke, P. F., Boston, Mass.
- Tool Blocks.**
Hulburt Rogers Mch. Co., South Sudbury, Mass.
- Tool Chests.**
Am. Tool Co., 200 W. Houston St., N. Y.
- Tools.**
Grown, R. H. & Co., New Haven, Conn.
Fraser Co., 19 Warren St., New York.
Mayhew, H. H. Co., Shelburne Falls, Mass.
Millett Falls Co., 93 Reade, N. Y.
Richardson, C. F. & Son, Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, New York.
Starrett, T. S., Athol, Mass.
Wilkinson, A. J. & Co., Boston, Mass.
- Tools, Blacksmith and Wheelwrights.**
Buffalo Forge Co., Buffalo, N. Y.
Butts & Ordway, Boston, Mass.
Champion Blower & Forge Co., Lancaster, Pa.
Plumb, Fayette R., Philadelphia, Pa.
Wiley & Russell Mfg. Co., Greenfield, Mass.
- Tools, Steam and Gas Fitters'.**
Saunders' Sons, D., Yonkers, N. Y.
- Torches, Oil and Gasoline.**
Danzler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp Co., Cleveland, Ohio.
- Transom Lifters.**
Wollensak, J. F., Chicago, Ill.
- Tricycles.**
Toledo Metal Wheel Co., Toledo, Ohio.
- Trucks, Manufacturers of.**
Clark, G. P., Windsor Locks, Conn.
Lansing Wheelbarrow Co., Lansing, Mich.
- Tubes, Seamless Drawn Copper.**
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Randolph & Clowes, Waterbury, Conn.
- Tubes, Steel.**
Ellwood Shafting & Tube Co., Ellwood City, Pa.
Leng's John S. Son & Co., 4 Fletcher St., New York.
U. S. Projectile Co., Brooklyn, N. Y.
- Tumbling Barrels.**
Henderson Bros., Waterbury, Conn.
- Turnbuckles.**
Cleveland City Forge & Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.
- Twist Drills, Makers of.**
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
New Process Twist Drill Co., Taunton, Mass.
Standard Tool Co., Cleveland.
- Valves, Gas, Water and Steam.**
Best, Fox & Co., Pittsburgh, Pa.
Chapman Valve Mfg. Co., Boston.
Eynon-Evans Mfg. Co., Philadelphia, Pa.
Jenkins Bros., 71 John, N. Y.
Lunkenheimer Co., Cincinnati, O.
McNab & Harlin Mfg. Co., 605 John, N. Y.
- Ventilator Appliances.**
Howard & Morse, 45 Fulton, N. Y.
- Vise Jaws.**
Newark Mch. Tool Co., Newark, N. J.
- Wires.**
Athol Machine Co., Athol, Mass.
Hollands Mfg. Co., Erie, Pa.
Howard Iron Works, Buffalo, N. Y.
Millers Falls Co., 93 Reade St., N. Y.
Prentiss Vise Co., 44 Barclay St., N. Y.
Van Wagoner & Williams Co., Warren St., N. Y.
- Wagon Jacks.**
Covert Mfg. Co., West Troy, N. Y.
Covert's Saddlery Works, Farmer, N. Y.
- Washers.**
Haskell, Wm. H. Co., Pawtucket, R. I.
Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H. & Son, Reading, Pa.
- Washing Machines.**
Richmond Cedar Works, Richmond, Va.
- Water Meters.**
Worthington, Henry R., 86 & 88 Liberty St., N. Y.
- Water Wheels.**
Poole, Robt. & Son Co., Baltimore, Md.
- Wheelbarrows.**
Amer. Steel Scraper Co., Sidney, Ohio.
Byran Mfg. Co., Byran, Ohio.
Cockburn Barrow & Mch. Co., Jersey City, N. J.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Lansing Wheelbarrow Co., Lansing, Mich.
Sidney Steel Scraper Co., Sidney, O.
- Window Cleaners.**
Bourke Mfg. Co., Youngstown, O.
- Window Cord, Makers of.**
Samson Cordage Works, Boston, Mass.
- Wire, Manufacturers of.**
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Miller & Van Winkle, Brooklyn, N. Y.
New Castle Wire Nail Co., New Castle, Pa.
New Haven Wire Mfg. Co., New Haven, Conn.
Prentiss, Geo. W. & Co., Holyoke, Mass.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester, Mass.
Wetzel Bros., 93 Liberty St., N. Y.
Wolf, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Wright & Colton Wire Cloth Co., Worcester, Mass.
- Wire Cloth.**
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Ester, W. S., 65 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff, New York.
Howard & Morse, 45 Fulton, N. Y.
N. J. Wire Cloth Co., Trenton, N. J.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
Wright & Colton Wire Cloth Co., Worcester, Mass.
W. S. Tyler Wire Works Co., Cleveland.
- Wire Cutters.**
King, J. M. & Co., Watertown, N. Y.
- Wire Dies.**
McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 John, N. Y.
- Wire Fences.—See Fencing, Iron and Wire.**
- Wire Goods, Manufacturers of.**
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
Ludlow-Saylor Wire Co., St. Louis.
Ossawaun Mills Co., Norwich, Conn.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
Williamson, C. T. Wire Novelty Co., Newark, N. J.
- Wire Machinery.**
Am. Tool Wks., Cleveland, O.
Manville, E. J. Mch. Co., Waterbury, Ct.
Morgan Construction Co., Worcester, Mass.
Waterbury Mch. Co., Waterbury, Conn.
- Wire Straightening and Cutting Machinery.**
Adt, John & Son, New Haven, Conn.
- Wire Nails.**
Bond Nail Co., Raynham, Mass.
Indiana Wire Fence Co., Crawfordsville, Ind.
Kilmer Mfg. Co., Newburg, N. Y.
New Castle Wire Nail Co., New Castle, Pa.
Phillips, Townsend & Co., Phila.
Salem Wire Nail Co., Salem, O.
Taunton Wire Nail Co., Taunton, Mass.
Whitney, A. R. & Co., New York.
- Wire Rods, Steel.**
New Castle Wire Nail Co., New Castle, Pa.
Washburn & Moen Mfg. Co., Worcester, Mass.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wolf, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.
- Wire Rope, Iron and Steel Makers.**
Broderick & Bascorn Rope Co., St. Louis, Mo.
California Wire Ropes, San Francisco.
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester, Mass.
Williamsport Wire Rope Co., Williamsport, Pa.
- Wood-Working Machinery.**
Fay, J. A. & Egan Co., Cincinnati, O.
Reneca Falls Mfg. Co., Seneca Falls, N. Y.
Wilkinson, A. J. & Co., Boston, Mass.
- Wrenches, Manufacturers of.**
Bemis & Call Hardware & Tool Co., Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Cox Wrench Co., Worcester, Mass.
Trimont Mfg. Co., Roxbury, Mass.
Williams, J. H., Brooklyn, N. Y.
- Wringers.**
Colby Wringer Co., Montpelier.
Peerless Mfg. Co., Cleveland, Ohio.

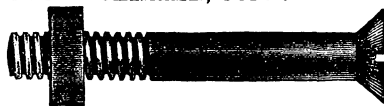
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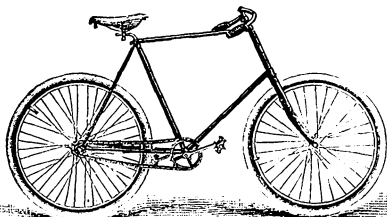


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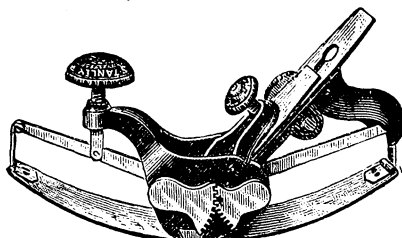
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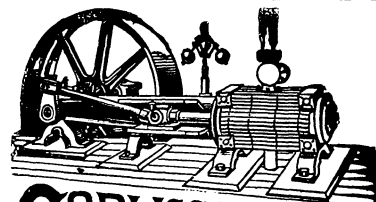
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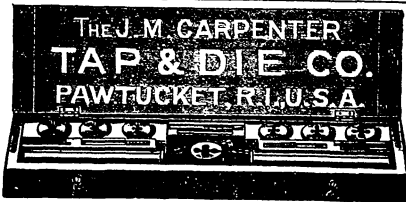
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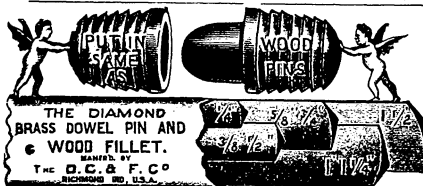
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See Page 64.

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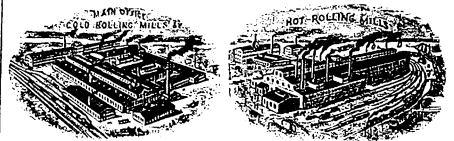
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or more of a size, and
in widths varying from
one inch to eight inches or thereabouts by about 1-16
inch and in thickness No. 21 Stubbs Gauge (about
1-32 inch) and thicker for the narrower widths and
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COLD ROLLED Especially to order
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round edges in any of the regular Hot Rolled Steel
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furnished at our option with round edges or one or
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about No. 6 Stubbs Gauge (about 2-10 inch) and
with any quality of surface or degree of
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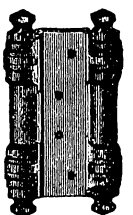
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THE IRON AGE

THURSDAY, FEBRUARY 22, 1894.

Cable Railroad Electric Signaling System.

The Third Avenue Cable Railroad of New York, which was opened a few days since, extends from the Post Office to 130th street, through Park row, the Bowery and Third avenue. There are two power houses, one located at Bayard street and the other at Sixty-fifth street. From the former the cable extends to the Post Office and to Sixth street, about a mile in each direction; from the latter run two lines—one to Sixth street, a distance of $2\frac{1}{4}$ miles, and the other to 130th street, a distance of $3\frac{1}{4}$ miles.

It is not the purpose in the following to describe the road in general, but to illustrate an electric signaling system

where the streets are numbered they are placed at those bearing even numbers. Where practicable, the boxes or manholes bear the same numbers as the streets they are nearest to; for instance, the box at Thirty-second street is number 32. Each manhole contains a so-called "automatic," B, from which lead the wires of the cables D to the power houses and telephone stations. Plug switches are provided at M, where the wires of the telephone S T can be attached when it is necessary to talk from any manhole to any of the stations.

Each signal sent consists of a certain number of strokes on a gong, each having an arbitrary meaning. One stroke means "stop the cable;" two strokes, "go easy;" three strokes, "go ahead: O. K.;" four strokes, "fire," as indicated by Figs. 3 and 4. In the engine room of each power house are two

and the Sixty-fifth street house ignores the signal. So far, this only provides for the stopping of either cable and is done, presumably, by either the motor-man or conductor of a car.

When the conductor raises the cover of the box containing the automatic B, Fig. 1, he lifts the automatic by means of its handle, shown in Fig. 2. This strikes one in each power house on either the large or small gong, according to the location of the automatic sending the signal. This is all he is expected to do, except to replace the cover, which he cannot do without first depressing the handle of the automatic to the position indicated in Fig. 2. Then when the cover is put in place, the mechanism of the automatic is tripped, and the particular number of that box is rung upon the gong. Raising the automatic to send the first signal "winds up," so to speak, the mechan-

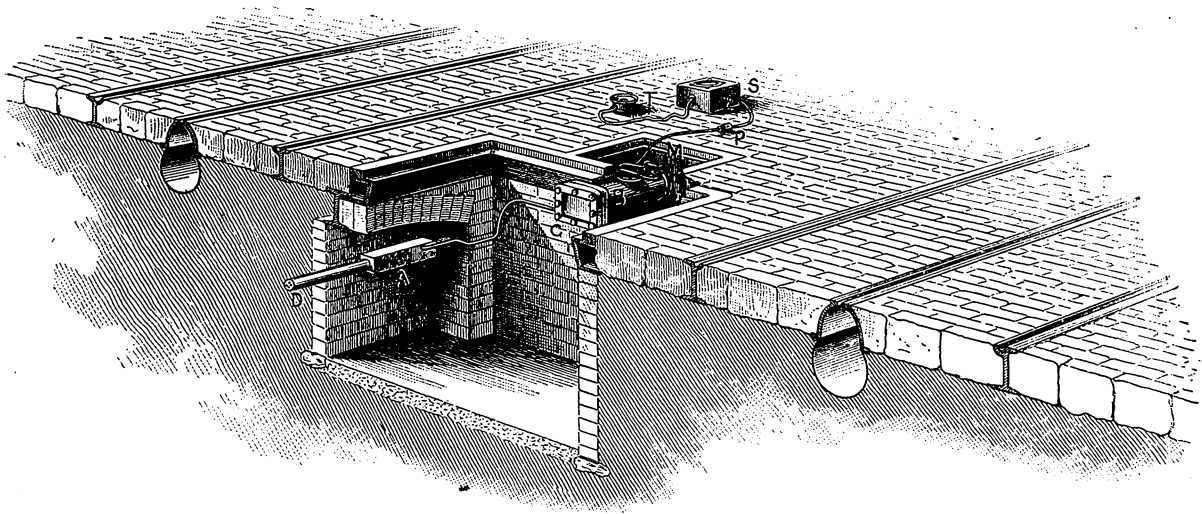


Fig. 1.—View of Manhole and Automatic.

CABLE RAILROAD ELECTRIC SIGNALING SYSTEM.

embodying many new and novel points, which is now being installed. The value and importance of this apparatus will be appreciated when we state that with it it is possible to signal either power house from any point on the road. There is practically but one warning that a car conductor is called upon to send and that is "stop the cable." He is not concerned with any other question, since in every case where this is not necessary he can drop the cable from his grip and bring his car to a standstill. But it must not be understood that this is the only signal that can be sent; the signals can be increased indefinitely in number and in addition communication by telephone can be had with any one of five stations.

General Features.

Placed between the tracks, at regular distances from each other, are manholes, the arrangement of which is shown in Fig. 1. As far as possible, these manholes are located on the north side of every other cross street, and

gongs, a large one and a small one, and on these gongs the signals are sounded. Two gongs are used in order to distinguish between the different portions of the road. By referring to Fig. 6 it will be seen that the road is operated by three distinct sets of cable—one from the Bayard street power house and the others from the Sixty-fifth street house. It would be manifestly foolish to stop the cables operated from the Sixty-fifth street house when the trouble occurs at the Post Office and, therefore, only affects the Bayard street cable. For this reason two different gongs are employed. When the larger gong rings it means that one of the Sixty-fifth street cables must be stopped instantly and the engineer at the Bayard street house knows that the difficulty is not with his line. At the same time an annunciator is dropped at the signal box in the Sixty-fifth street house to indicate whether the "up" or "down" cable from that house is in trouble, as shown in Fig. 5. When the smaller gong rings the Bayard street cable is stopped

ism of the automatic, so that it is prepared to send its own number automatically when the tripping occurs.

Every signal sent is printed upon a tape and the date and time of its receipt are also recorded. The general appearance of the signal box at the Sixty-fifth street house is shown in the engraving, Fig. 5. The tape, Fig. 4, means that on January 24, 1894, at 10.45 a. m., a warning of fire was sent from the automatic No. 32. On the signal box are placed cards having the locations of the several automatics and general notices and instructions. The recording apparatus is similar in the work it does to the stock tickers.

Immediately upon the receipt of the number of the automatic sending the signal, the wrecking wagon from the nearest station is sent to it. This carries the telephone, by means of which conversation can be carried on with either telephone station or either power house. After the trouble has been remedied the automatic is again brought into use to signal the engine room, the symbols used being those shown in Fig. 3. The

automatic is raised once for each time it is desired to strike the gong.

From the foregoing it will be seen that the cable can be quickly stopped by any employee of the company, the engineers considering the notice to stop as imperative. Unless the conductor willfully neglects to replace the cover on the box of the automatic, the number is sent in; that he will neglect this duty is not probable. His work therefore is simple in the extreme and is always the same: He lifts a cover, raises a handle and replaces the cover, when he waits for those in the wrecking wagon, who take charge. It would seem, under these conditions, that the only error he could make would be one of judgment in stopping the cable un-

case is a handle, which is so influenced by the spring shown as to be held in either its lowered position, as indicated, or in its raised position. Remembering that the frame carrying the gearing is immovable, it will be seen that the free end of the cylinder can be raised a short distance by means of its handle, this being made possible by reason of the flexibility of the diaphragm mentioned.

Centrally in front of the apparatus will be noticed two conductors, one of which leads to a contact piece secured to the frame, while the other leads to a second contact piece held to the inside of the cylinder by the screw shown. When the free end of the cylinder is depressed these

the box cannot be replaced without forcing the handle down and thereby affecting the release. The train operates the mutilated wheel, shown in the center of the engraving, the notches in which are arranged to send the signal 32, the circuit being broken every time the brushes enter the notches. By properly arranging the notches and the spaces between each set any desired number can be transmitted.

In the free end of the cylinder is placed a small dash pot, the plunger of which is united to the under side of the case. This is provided in order to guard against the mechanism being injured by a too violent jerking up of the handle.

It is to be noted that the vital part of

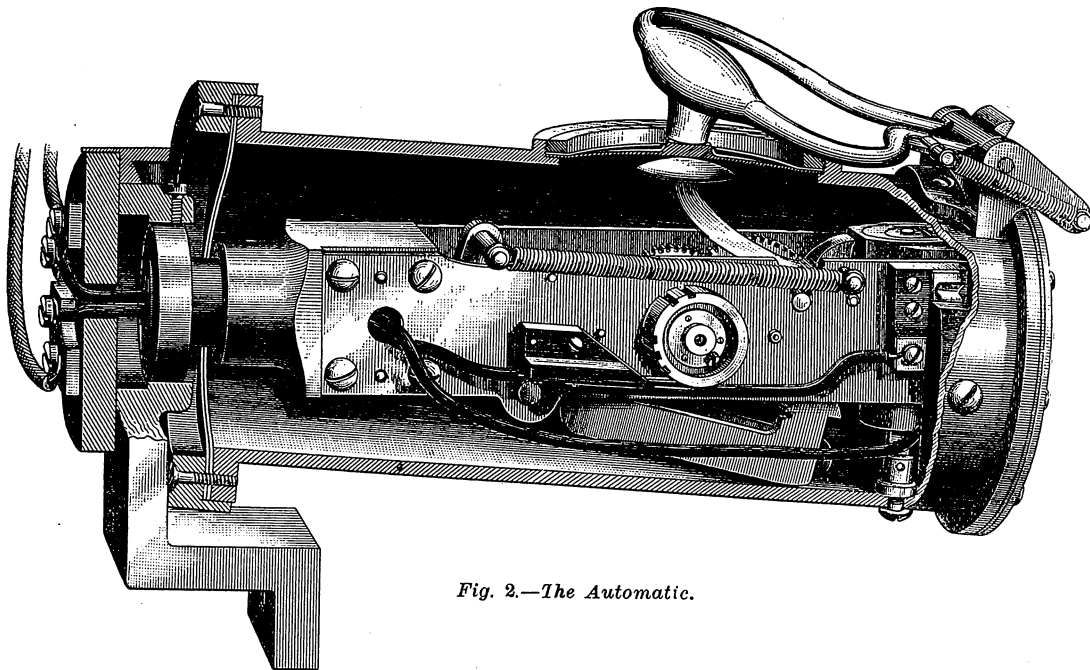


Fig. 2.—The Automatic.

----- Stop Cable
 - - - - - Go easy
 - - - - - Go ahead; O.K.
 - - - - - Fire

Fig. 3.—Code of Signals.

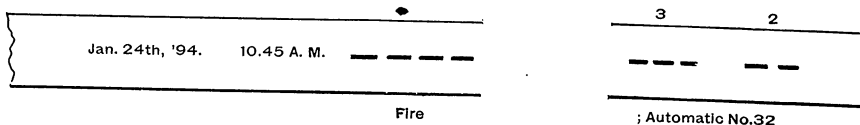


Fig. 4.—Record Printed on Tape.

CABLE RAILROAD ELECTRIC SIGNALING SYSTEM.

necessarily; but as this would only cause a cessation of traffic for a few moments it would not be serious.

The Automatic.

The automatic, shown in the broken view, Fig. 2, is the invention of Frederick Pearce of 79 John street, New York, who is at present installing the entire signaling plant and it is to his courtesy that we are indebted for the privilege of illustrating and describing the system. The automatic consists of a bronze cylinder about 9 inches long by 3½ inches in diameter, provided at each end with a cap. The cap to the left in the engraving consists of a rubber covered metallic diaphragm, through the center of which passes the end of a frame carrying in its inner portion the train of gears by means of which the number of the automatic is signaled. The outer end of the frame is held rigidly in a cast iron spider bolted to the box containing the device. At the opposite end of the cylindrical

contact pieces touch each other and the electrical circuit through the automatic and the several stations is closed. When the end of the cylinder is raised the contact pieces are separated, the circuit is broken and the gongs are struck once.

This raising of the free end of the cylinder winds up the train of gears against the tension of a spring. This is accomplished by means of a segmental gear, which engages with the train and which is raised to wind the train by the movement of the cylinder. In the upper part of the cylinder is a diaphragm, under the center of which is the end of a lever, the depression of which releases a catch and sets the train in motion. On the handle is a lug, which rests upon the center of the top of the diaphragm, directly over the end of the lever. The handle can be depressed and the train released by hand; but should this be forgotten it will be readily understood that the cover of

the device is inclosed in a sealed case and it is therefore perfectly protected from dampness and dust. This is an important point, as it adds to the durability of the device and lessens the danger of accident.

The wiring in the street and in the Sixty-fifth street power house is clearly indicated in Figs. 6 and 7 respectively. The course of the circuit can be readily followed from any particular automatic to the several stations. The second telephone from the right indicates the central office, which can be rung up in the usual way from any automatic and connection made with any desired point.

Conclusion.

The fact that the automatics are operated by the breaking of a closed circuit is a point of the greatest value. As is well known, it means that upon the breaking of the circuit at any point and from any cause, the signal is in-

stantly transmitted to each station. If this signal is not followed within a reasonable time by the number of an auto-

known, and until a signal from an unknown source is received the line is certain to be in perfect working shape.

control of every motorman on the road, no matter at what point he may be; and in case of accident it provides means of communication from the scene of the accident to headquarters and to all the branch offices.

In all such depressions as the country is now experiencing, says Henry Clews in his last weekly letter, there comes a stage at which men of capital find tempting opportunities for buying something or other at prices which will yield a handsome profit when the phase of recovery comes. There are certain conditions which always indicate the

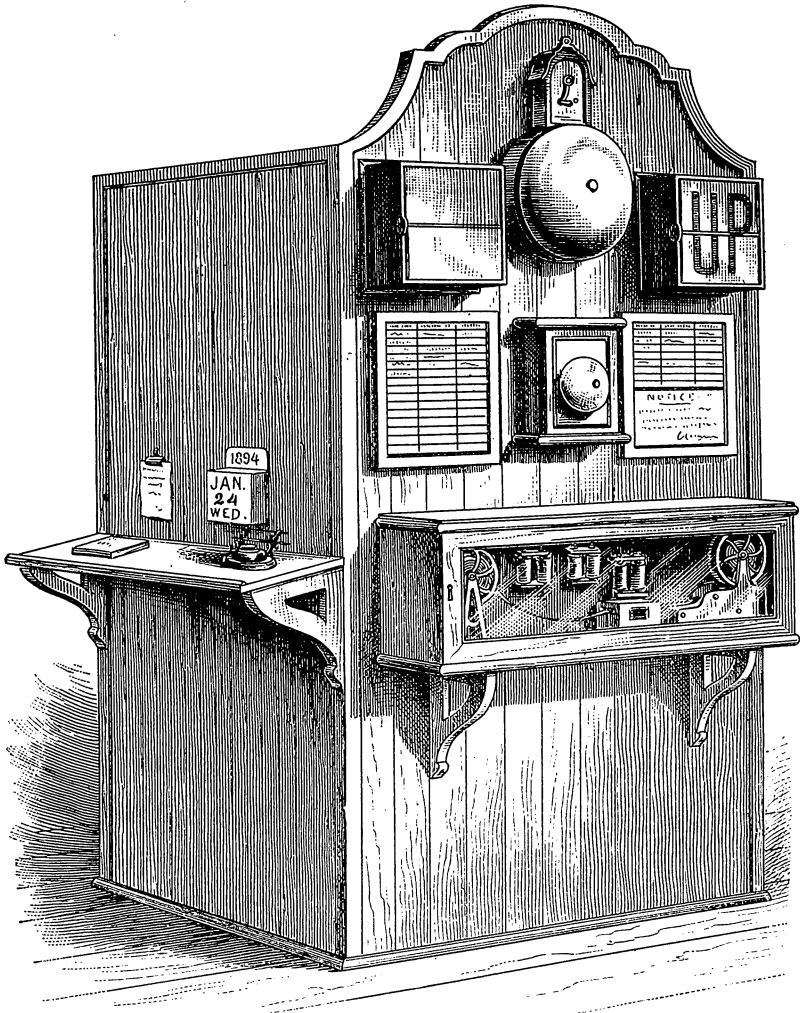


Fig. 5.—Signal Box in Sixty-fifth Street Power House.

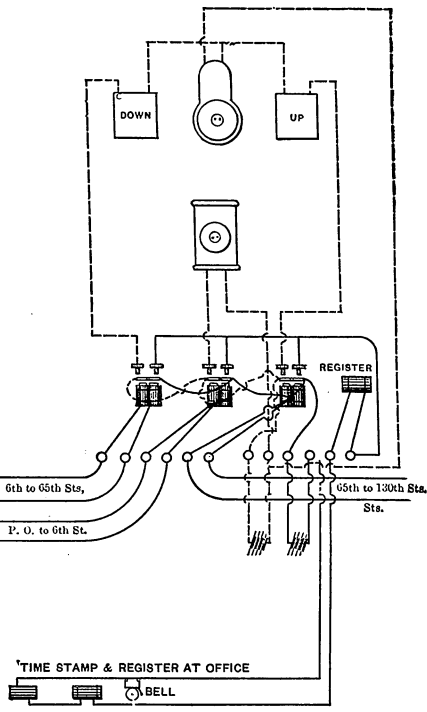


Fig. 7.—Diagram of Wiring in Sixty-fifth Street Power House.

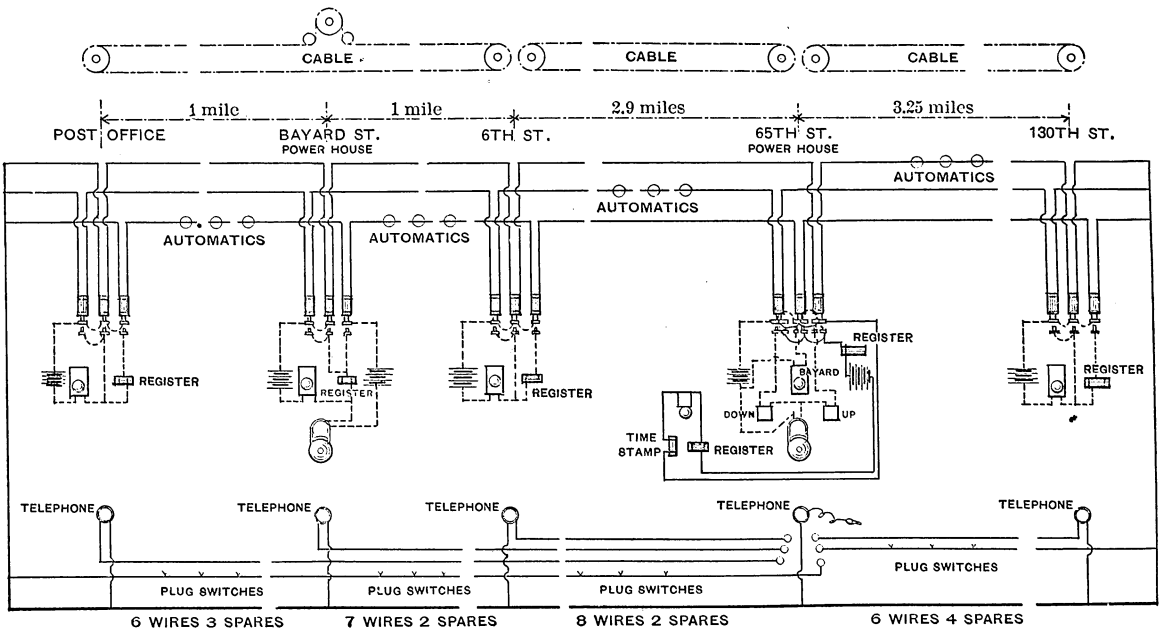


Fig. 6.—Diagram Showing Wiring.

CABLE RAILROAD ELECTRIC SIGNALING SYSTEM.

matic the conclusion is reached that the circuit is broken and repair to the line is needed. Any derangement is instantly made

All parts of the system are extremely simple and present few features liable to accident. By its use each engine room is practically placed under the

arrival of such opportunities. One of the indications is exceptionally low prices; another, a low condition of supplies; another, a general reduction in

wages and raw materials and costs of transportation; another, the beginning of a better demand from consumers; another, a condition of the foreign exchanges in which there is no prospect of an outward drain of gold; another, a state of the money market in which it is easy to borrow on ordinary collateral for long periods and at favorable rates; and another, a disposition all around to take a more hopeful view of prospects. When these conditions are found all existing together it is pretty safe to conclude that the depression has touched its lowest point, and that the recuperative forces are beginning to act. The recovering tendency may seem feeble at first and may be sensitive to check from slight causes; but the force grows steadily and without relapse until normal conditions are again established. This is the stage at which men of reserved means come into the markets; and wisely, for there is hardly a thing they can buy which is not reasonably calculated to yield them a profit.

English and American Machine Tools.

A correspondent of the *British Trade Journal*, who signs "Anglo-American," writes to that journal as follows on the subject of American machine tools in England:

The importation of American machinery and machine tools into this country has become quite a business of late years, and several firms on this side of the Atlantic, having secured good agencies from American makers, have done a profitable trade in this branch alone. According to the latest statistical information, derived from the official report of the United States Government, the facts are as follows:

Imports Into England from the United States.*

	1892.	1893.
Steam engines and parts of machinery not otherwise specified	\$2,218,600	\$2,023,470
Builders' hardware and saws and tools	576,641	645,997
Agricultural implements	620,982	598,514

Our exports to the United States during the last five years have been:

	1888.	1889.	1890.	1891.	1892.
Steam engines and parts	£36,000	£46,669	£44,647	£63,789	£35,764
Other description of machinery	543,259	840,752	675,599	925,241	1,016,000

The returns compiled by the Board of Trade do not permit of any further details being given, our exports of implements and tools being placed in one lump sum, with no indication as to where they are consigned. The above quoted figures show, as far as it can be done, the condition of the trade between the two countries. But this letter purposes dealing more with facts than with figures, while it may serve a useful purpose to point out why and how this import trade in American machinery and machine tools has grown up.

When the matter is sifted to the bottom, the cause will probably be that a demand has sprung up of late years in England for a tool which some English makers have not always been able to supply. It is not admitted that good tools have not hitherto been obtainable in this country, but they have not been readily accessible to the buyer. And then, too, work-

men have found out that by using a well made and properly designed lathe (taking this tool as an example) they can increase their output of work. In fact, it is becoming pretty well known that so-called cheap tools are really the dearest; the quality of work done with them is inferior and takes longer time, while if the first cost is lower, the length of time during which the tool can be used is shorter than the life of a first-class tool. It is an axiom that good tools produce true work, and defective tools produce defective work.

Sometimes the merchant lends his aid in selling a second or third rate tool, as he is occasionally more anxious to secure an order than to purchase a good tool. If merchants refused to push the sale of such articles the demand would ultimately fall off. A manufacturer of a high class of goods, speaking a short time ago on the subject, said that one of the chief obstacles to the use and sale of good tools has been the attitude of a certain class of merchants who frequently depend on a specification when buying, and expect to get a good tool at a low figure. It is not at all an unusual thing for two quotations to the exact specification, but from different makers, to vary as much as 100 per cent., and yet the merchant, who is probably not a practical man in this branch, expects as much from the cheap maker as from the apparently more expensive one.

The American system of manufacturing favors exactitude. Their system of subdividing work has resulted in accuracy, and this latter quality is one of the points upon which they depend. Of course, there are inferior American machine tools as in anything else, but the majority of them are excellent. It has been well remarked by an American maker that here in England we build machinery, but in the States they manufacture it. American manufacturers have an immense home market, and what they have over they can afford to send abroad. To produce such large quantities they have perfected their plant until they can turn out vast quantities of goods at a minimum of cost. As regards the question of higher wages, people who know American "bosses" will agree that they get the full value for their money out of their

employees. If they earn more they have to work for it. The main results of the American system of production are these: That it is conducive to accuracy in making machine tools and machinery generally; that subdivision of labor lends itself to this result; that by producing a quantity at a minimum cost makers always have a good stock on hand ready for consignment. Apropos of this it may be mentioned that a customer went to an English firm importing American tools some time ago and ordered two screw machines, at the same time stipulating that they should be delivered at an early date. The time allowed was very short and the order was given on a Friday morning. A cable was sent to New York, with these results: The goods were packed and put aboard the Liverpool steamer sailing the next day, and so cabled, and delivery was accomplished within 13 days from placing the order. This shows the necessity of keeping a stock ready on hand.

This, however, implies a fairly quick sale, a good and complete plant, and confidence in the goods you are mak-

ing. One fault of the English makers is that they do not put enough capital into their business. They are content to invest money in flimsy mining companies and in foreign railway stock, but somehow they don't put it, as a rule, into their own branches of business. Not a few of the manufacturing concerns in England suffer from this cause.

One of the genuine complaints against American machinery and tools is that they are too light; and the success which their makers have achieved in tools which lend themselves to this description of work would apparently justify this statement. The American made light and high speed drilling machines have made great progress in this country, and if English makers cannot produce similar machines in large quantities and find a ready sale for them, their opponents will maintain their position. American chucks, too, hold their own, especially for light work, in spite of competition, while a large business is done in importing American milling machines, turret lathes, emery wheels, micrometers, wood working machinery, &c. It is also the opinion of those best capable of judging that the majority of the American tools imported into this country, with the exception of, perhaps, small hand tools, gauges, &c., are better adapted for the machining of American material, which is considerable softer than English. They are hardly stiff enough to cut our iron, or to take such a stiff cut as can be made with our tools.

We have long prided ourselves that England is the first manufacturing nation in the world, and it would ill become such a country to recede from that position. Although American makers have started on an export trade, they are as yet comparatively new to the business. As a rule, the average American manufacturer is utterly unfitted for export trade. Although they spend a good deal of their time in telling folks how sharp they are and what a go-ahead nation America is, yet, as a rule, they are exceedingly provincial in their ideas. On a recent occasion no fewer than eight manufacturers in the United States were asked by a London house for prices of some of their goods for export. The firms were all first-class people and do an extensive business in the States, and yet not one of them named a price that answered the inquirer's purpose. For instance, one said: "We can furnish you — at \$——, f.o.b. cars at —, boxing at cost price." How was one to tell what the dimensions of the goods would be, what their weight would be, and the cost, except in a general way, of boxing and delivery f.o.b. on steamer at New York?

A steel ship of great cargo carrying capacity, to be named the "Dirigo," is about to be launched at Bath, Maine, and as soon as the ways are clear another is to be laid down. The future of these Maine built steel vessels will be watched with interest, observes the *Boston Transcript*, for if they return a handsome profit to their owners, the fact will demonstrate that a great New England industry need not leave New England in order to enable it to procure raw material at prices consistent with a good return on labor and capital.

A new lodge of the Amalgamated Association has just been organized at Gas City, Ind. It is claimed to contain 75 members.

*We have substituted the returns for the full years 1892 and 1893 for those of the original, which covered only nine months. Editor *The Iron Age*.

Canadian Notes.

In this country it cannot be said that the manufacturers of iron are one harmonious whole. Naturally the producers of pig iron and the producers of bar iron should be easily able to reconcile their respective interests, but in Canada these interests are artificially antagonized. The tariff gives protection to both stages of the iron industry, but renders the protection to pig iron in a large degree nugatory by its trifling duty on wroughtscrap iron. The bar iron manufacturers, therefore, can and do import their raw material in this form, and thus prevent domestic smelting from coming to fruition in puddling bars. The pig iron manufacturers have consequently to restrict their production for the most part to foundry grades. They have long protested against this. Since the beginning of the year they have bestirred themselves with fresh activity to induce the Government to increase the present duty of \$2 a ton on wrought scrap. Their opponents, the rolling mills people, are even more on the alert in defense of the low duty on scrap. The Government have been besieged by deputation after deputation from both sides of the controversy, and are evidently at their wits' ends to know what to do. They cannot deny that there is but a truncated domestic iron industry, as the easy admission of scrap causes home production to stop short at foundry iron, instead of including forge iron, proceeding to puddled bars and on to bar iron and steel. In such circumstances the pig iron manufacturers are unanswerable when they ask, "To what purpose is the duty of \$4 a ton on pig iron and \$9 a ton on puddled bars if we are to have no demand for either?" On the other hand, the rolling mills companies say that if the duty were raised on scrap iron to a prohibitory point it would not avail domestic producers of crude iron, as the latter have not the facilities to produce enough puddled bar, and, moreover, cannot produce it at the price at which it can be imported. The pig iron people say they could keep the market supplied with puddled bar if the Government would grant them a bounty in addition to the present duty of \$9 a ton. What further increases the perplexity of the Government in relation to the iron duties is the uncertainty whether protection will be feasible after the United States tariff is settled.

The Government Tariff Committee has received several deputations from manufacturers of heavy and shelf hardware, all urging that no change be made in the duties. Foundry facings, barbed wire, wire nails, tacks, cut nails, are among the articles for which continued protection is thus bespoken.

The Council of the Toronto Board of Trade has passed a resolution urging the Government to place coke on the free list, also all machinery not manufactured in Canada that is needed for the establishment and operation of smelting works. This is to indorse the petition of the new American company who are putting up smelting works at Hamilton.

The starting of new rolling mills in Toronto has had a somewhat disintegrating effect on the Bar Iron Association, as the local member of that association, the Ontario Rolling Mills Company, withdrew from it in order to be free to compete with the new comer.

The prices of bar iron, wire nails and galvanized barbed wire were reduced by the associations at the last meeting.

The Dominion Government is only one season behind the Provincial Government of Ontario in bidding for the farmers' vote by prison-made binder twine. Last year the central prison at Toronto entered upon the binder twine industry, and now the penitentiary at Kingston is being equipped for the same purpose. The farmers are pleased, and only an inconsiderable body of artisans, many of them women and children, have direct cause to be displeased. The Government seems to have had no choice but to abandon its beneficiary, the Cordage Company. Last year it struck off half the duty, but its direct competition is the unkindest cut of all. But some of the most prominent members of the Cordage Company derive great benefit from protection to other centralized industries they have large interests in, as sugar refining, cotton manufacturing, coal and mineral properties, &c. The machinery for the new twine works in the penitentiary at Kingston was put in by John Connor of St. John, N. B.

The McCallum Steel Wheel & Wagon Company aim to establish nickel smelting works in Ontario. It is not known that a site has been chosen, but Hamilton appears to be a strong favorite. The scope of the proposed industry will be indicated by the fact that it will employ between 400 and 500 men. A free site and a bonus are desired inducements.

The Halifax Shovel Works, burnt some time ago, are being rebuilt on a much larger scale.

The Metal Roofing Company of Canada, Limited, have elected the following officers for the current year: E. Samuel, president; A. D. Benjamin, vice-president; J. O. Thorn, secretary-treasurer.

An engine and two pumps have been constructed by M. Beatty & Sons, Montreal, to overcome no less a natural obstacle than a watershed. The pumps are for the purpose of keeping a supply of water in an artificial channel between the slopes of the Georgian Bay and the Trent Valley. This channel is used by one of the largest lumber firms in Canada for floating their logs across the high of land. The pumps are 15 and 12 inch centrifugals, and will raise 5000 gallons of water per minute.

Cut nails are not being as evenly quoted as they were last year. The manufacturers of the Maritime Provinces have adopted a price list of their own and those further West have to follow their example, over all debatable territory, at all events.

The Ferrona Iron Works are now using coal from the mines of the Dominion Coal Company, at Glace Bay, Cape Breton.

The expectation of tariff changes continues to make importers and manufacturers cautious and to restrict business.

The city of Trenton, N. J., is suffering severely from the suspension of her pottery industries. Twenty potteries are closed down, as well as a number of brick and decorating yards. Fully one-half of the city's working population is reported as idle, and much distress prevails, 1000 entire families being fed and supported by the Citizens' Relief Committee.

Basic Open Hearth Furnace.

BY G. L. LUETSCHER, CLEVELAND, OHIO.

"After the possibilities of the basic and the acid open hearth processes have become well demonstrated, the basic will be generally used for soft and the acid for hard steel, meaning that with over 0.6 per cent. of carbon." This opinion was published by H. D. Hibbard in his paper "Variations of the Open Hearth Steel Process," in *The Iron Age* of July 2, 1891. The developments of basic open hearth practice in the last three years has fully proven the correctness of that statement, only there should be substituted "0.3" for "0.6" per cent. carbon in the sentence. The fact that equally as good if not better soft steel can be produced in the basic furnace at a considerably lower cost for raw material than in the acid will gradually force most of the manufacturers of plates and other soft material to the adoption of the basic process. With this change of process the shape of the furnaces will have to be adapted to the new demands. We will gradually arrive at a point when open hearth steel will be divided in two distinct groups, each of which will be used for different purposes and will be made in different furnaces and under different conditions.

By the acid process steel will be made with a careful avoidance of oxidation either by ore or air, while the basic furnace will be used for the production of material in which the application of oxygen in shape of ore and a sharp flame is rather an advantage. High carbon steel, any kind above 0.30 carbon, for tools, springs, tires, axles and steel castings, will be melted in acid furnaces with straight high roofs and port arrangements, which will insure a neutral flame. No slag pockets will be needed, as no, or very limited, additions of ore will be made. The heat required for this class of steel will not generally, except in case of steel castings, reach the highest possible limit, and the furnaces will withstand the action of heat and flame better, because no lime and ore dust will be thrown against the walls, blocks and into the ports. The latter will keep their original shape much longer and cause little trouble. Soft steel, boiler and fire box plates especially, will be made almost exclusively in basic furnaces, which will have to be built to produce a sharp flame when wanted, with a view to reach the highest possible degree of heat at the proper place without burning the furnace, since the product, steel or rather ingot iron, with only 0.02 and less per cent. of phosphorus and little or no carbon before the final additions are made, so nearly approaches the chemically pure iron that its melting point is very high, and its production consequently requires a very hot furnace. Dust of the basic additions is mechanically carried along with the outgoing waste gases and will soon corrode all acid brick work, an unavoidable damage, which can only be checked partially by the use of "slag," or better, "dust" pockets. The same corroding action of the additions, coupled with the intense heat and sharp flame, will have a tendency to destroy the back ports sooner than the front ports. As soon as this disagreeable one-sided working begins to show itself, some means must be adopted to force a larger amount of gas and air through the front ports into the furnace and to carry a larger quantity of waste gases out of

find fault with this shape of roof, although it does give ample space for a good large flame. Free flame development, incandescence of carbon particles, radiation, luminosity of flame, &c., is all right and good for a furnace, where neutrality of the flame is essential, for steel casting furnaces especially, but what does it really mean? Certainly nothing else but a slow combustion of the gas with a minimum amount of air, a combustion divided into two or more

can just as well be used against them—namely, “a non-luminous flame is as hot as a luminous one at the end.” The fact remains that, no matter how a given quantity of gas of a given composition is burnt, if it only be burnt completely, one and the same number of heat units will be made available, no more and no less. Whether these heat units are produced early in the furnace by an only slightly luminous “Bunsen burner” flame and immediately taken up by the

combustion than by slow development of flame with a high furnace roof. Frederick Siemens' claim that the flame should not come into contact with the material which is being heated therein appears rather absurd, when the rule of having a cool furnace, but a hot metal bath, is accepted as a good one for steel melting, and when practice shows that this aim can best be reached in a furnace which throws the flame well on the bath. However, any one who is over-

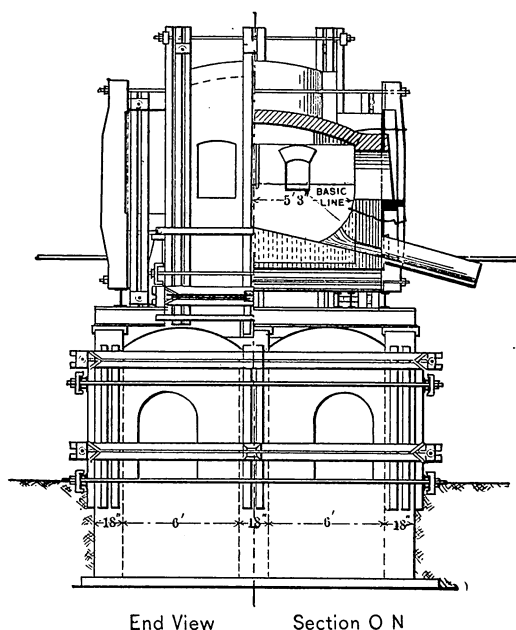


Fig. 3.—End Elevation and Section.

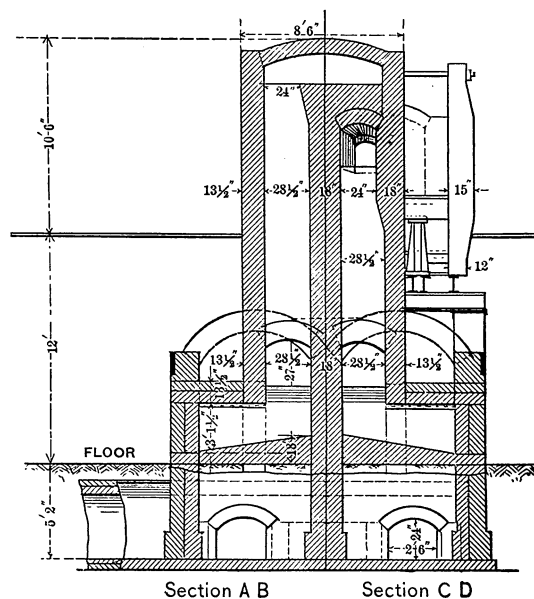


Fig. 4.—Vertical Section.

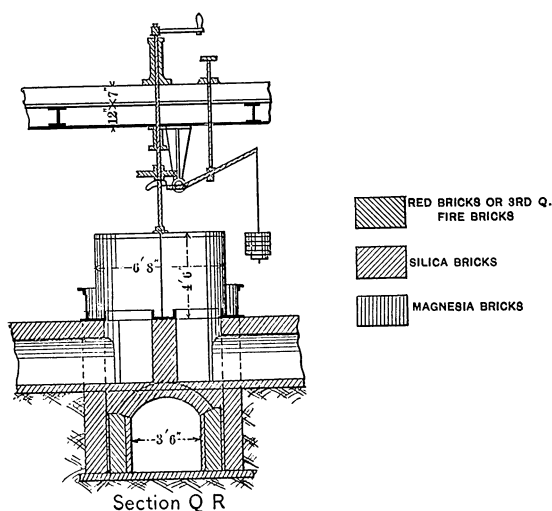


Fig. 5.—Section through Valve.

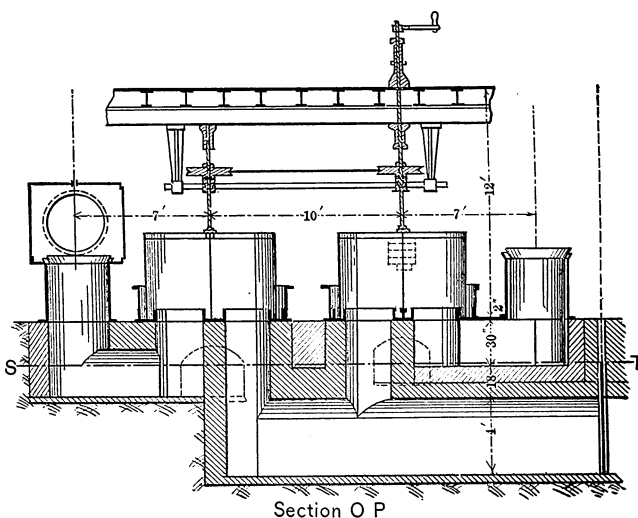


Fig. 6.—Section through Valves.

AN EIGHTEEN-TON BASIC OPEN HEARTH FURNACE.

parts; first, partial combustion of CO, combined with dissociation of hydrocarbons and separation of fine carbon particles, which become incandescent, then final combustion of the rest of CO and the suspended carbon particles. But the claim that more heat is gained by that mode of combustion is rather vague. When the advocates of that theory bring forth as a proof in their favor Dr. Sloan's dictum, “the difference between a luminous and a non-luminous flame is one of character only. If all the heat be utilized one is as efficient as the other,” they are wielding a decidedly two-edged sword, which

bath, or whether they are developed by slow combustion and transmitted by radiation and reflection to the bath, is not essential so far as the quantity of heat is concerned, but Dr. Sloan's plain distinction of the character is the essential point. The direct combustion is more or less combined with an excess of air. The flame has an oxidizing character, which can only be advantageous for a process which is chiefly based on the oxidation of various elements, as carbon, silicon and phosphorus—the basic process. The heat effect is certainly more concentrated at one place, the metal bath, by direct

anxious about this question can easily raise the roof $4\frac{1}{2}$ inches or 9 inches without any other changes in the design. It would be an interesting and conclusive experiment to try one and the same furnace for a given period with a high straight roof, and again with a roof pitched at the ends, using the same raw material, making the same product with the same working crew.

The hearth is lined with magnesite bricks up to about half the height of the doors. The bottom is shown to be burnt in with loose calcined magnesite. Where the first cost of construction is a consideration secondary to the ques-

tion of reliability and durability it would be better to build up the bottom with magnesite bricks as far as possible, only covering the top with a layer of burnt magnesite to smooth it off. There is no neutral layer of magnesite, chrome ore or any other material between the magnesite and the silica bricks. Practice has shown this to be unnecessary. The bottom of the gas ports is built of magnesite bricks to avoid hollowing out by corrosion by ore and lime dust—a very unwelcome but frequent occurrence with acid lined ports, by which the gas current is directed toward the roof instead of toward the bath.

The chill space is quite large, a very desirable feature. It gives the air free access to the most endangered part of the furnace and makes a long gas port, which will, even if partly corroded by ore and lime dust, still give the gas the proper direction. Between the two gas ports the block is divided by a 2 inch slot, which will prevent the throwing up of the port arch by lateral pressure in consequence of expansion by heat. Slag pockets are provided for every port.

The regenerators are set contrary to the usual practice in the longitudinal axis of the furnace, one to each port. By this arrangement the problem of laying out the flues, &c., for the combination of independent chambers with each port found an easy and satisfactory solution. Although the regenerators are large enough they could still be increased in size if desirable by being built 7 feet instead of 6 feet wide. The gas and air enter at the corner diagonally opposite to the connection with the pockets and ducts to the ports, thus being forced to travel across the checker work and take up the largest possible amount of heat.

The dampers for each chamber are given only diagrammatically in the drawing, as experience has yet to show whether iron or brick dampers are best adapted for the purpose. Should the first material prove suitable, the dampers would, of course, be best suspended vertically; should brick (in the shape of large tiles) be the better material, a horizontally moving damper would probably be the correct appliance. This, however, is a small detail and can soon be worked out by practice. Mr. Schoenwalder has obtained most encouraging results with his invention; the life of a furnace is claimed to be prolonged 50 per cent. and more. As the principle is a perfectly sound one, it ought to be given a trial.

The whole furnace is simple in design; there is no weight on any arch of heated brick work except the one over the passage from the regenerator chamber to the pocket, but this arch is of small dimension. There is ample free space under the hearth proper and the whole furnace does not cover an excessive area.

The valves are the so-called water seal valves. By pressing down the counter weighted lever with one foot, turning the handle one-quarter revolution and letting down the drums into their seats again by releasing the pressure on the lever, the flow of gas, air and waste gases is reversed. It is impossible to make mistakes in reversing, as one motion puts both valves in the right position simultaneously. This kind of valve is very much in use in Germany, but has not been used extensively in the United States. They cannot leak and give good satisfaction if properly constructed. Of course any regular Siemens' valve or any other approved system of valves could be used with this furnace equally as well.

An Exhibit of Canning Machinery.

The very important part now taken by machinery in canning vegetables and fruits was shown last week in Chicago. The occasion was the annual convention of the Canned Goods Association. It was an excellent opportunity to show canners from all parts of the continent the latest devices invented for their benefit, and the manufacturers took advantage of it. They secured a fine large room, with power, on the third floor of the building at 241 to 247 South Jefferson street, allotted the space among themselves and installed their machinery in exposition style, so as to show it in practical operation. The display thus made was extensive and exceedingly interesting, comprising machinery for all purposes in connection with the canning business, beginning with presses for punching can tops and bottoms from tin plate, following that up with coating devices, filling apparatus, machines for soldering tops on cans, machines for gumming labels, &c.

G. A. Crosby & Co. of Chicago occupied a prominent space, exhibiting their No. 45 power press, intended for heavy work, having a bed opening of 8 x 14 inches; their No. 30 press, with a bed opening of 5 x 8 inches, and their No. 16 press, with a bed opening of 3 x 5 inches. A small press was shown which is so constructed that it can be mounted either on legs or on a bench, and either in an upright or an inclined position, and adapted to a great variety of work in sheet metal. They also exhibited a new automatic double headed crimper, which is designed to crimp, at the same time, both ends on to the bodies of round cans. They further showed a new power solder cutter for cutting drop solder. In this machine the bars to be cut are laid on the bed plate and weights hold them tight against a stop piece in front, which is adjustable. As soon as the cut is made the weights feed the bars forward for another cut. All these machines were placed in line and belted from one shaft, making a neat and creditable display.

The Andrews & Johnson Company of Chicago showed the Johnson high speed engine attached to disk fans and blowers.

The Baker Mfg. Company of Muscatine, Iowa, exhibited a fine collection of special machinery suited to the requirements of those who can vegetables and fruits on a large scale. Much of this machinery is massive. The steam process, boxes and horizontal and upright process kettles are as substantial as the ordinary steam boilers. In this display there were steam can cleaners, pea can filling machines, air pumps, enormous tomato cookers, can soldering machines, &c. The machines for soldering can tops are ingeniously constructed, the soldering tool being attached to a swinging arm capable of covering considerable space. The tool is kept heated by gas passing through its interior. The labor saving idea runs through all the machinery made by this company, whose works were founded in 1882 and are now claimed to be the largest in their line in the world, employing upward of 600 men.

Daniel G. Trench & Co. of Chicago, as Western agents for a number of manufacturers, made an excellent display. They showed the Stevens can filler, by Maurice B. Ayars of Salem, N. Y.; the Canadian capping machine corn cutter and corn silker, by Sprague Mfg. Company of Farnham, N. Y.;

apple parers and corers, by the Goodell Company of Antrim, N. H.; also the Hawkins capping machine, just brought out.

George H. Colket & Co. of Philadelphia showed their improved Climax capping machine. The Hemingway Mfg. Company of Syracuse, N. Y., exhibited cookers and syringing machines. Frank Diesel of Chicago, can manufacturer, showed a variety of samples of tin cans. Henry B. Keeley of Vinton, Iowa, exhibited the Keeley corn silker. Cox, Bro. & Co. of Bridgeton, N. J., showed a tomato scalding and a capping machine. H. C. Baxter & Co. of Brunswick, Maine, exhibited a corn cooker and filler, corn silker, mixer, wiper, and an air compressor.

The Burt Mfg. Company of Rochester, N. Y., exhibited the Burt kerosene oil system of soldering, which is especially adapted to the use of large factories in which numbers of tinner are employed and a large number of soldering tools must be kept in constant use. They also showed the Burt tray wiper and the Burt topping machine. Included in their display were steel floor trucks and basket trucks manufactured by L. Murray Moore of Rochester.

The Sinclair-Scott Mfg. Company of Baltimore showed pea hullers of large capacity, scalders, can fillers and a variety of other special machines of their own design. They also exhibited the Perfection steam crane and demonstrated its advantages in large canning establishments.

Norton Brothers of Chicago showed their latest capping machine. This is constructed with a workman's bench at each end. The cans pass round the machine on an endless carrier. Both sides of the machine are fitted with automatic solderers, wipers, &c. Each workman takes off two complete cans as they pass in front of him and puts two in their place, and thus each keeps the other supplied with work. The capacity of this machine is 2300 cans per hour.

Merrell & Soule of Syracuse, N. Y., exhibited an automatic corn canner, filling considerable floor space, which cooks corn and fills and caps cans in one continuous operation. The Barker Mfg. Company of Portland, Maine, exhibited a power corn cutter, a hand corn cutter and a silker. The Cannery Supply Company of Bridgeton, N. J., showed a power steam scalding. The Bucklin Can Filler Company of Baltimore showed a new can filler. The Xenia Canning Company of Xenia, Ohio, exhibited one of their automatic can fillers, which measures the contents of every can, while it receives, fills and discharges them without any handling whatever. R. O. Conant of Portland, Maine, exhibited a corn cooker. The Hohmann & Maurer Mfg. Company of Brooklyn showed a large line of samples of special thermometers and gauges for use in connection with canning machinery. The Link Belt Machinery Company of Chicago had a representative on the ground with a large number of photographs of factory interiors, showing the company's shafting, pulleys, elevators and conveyors, power transmission, &c.

Not the least interesting feature of the display was the department devoted to labeling machines, for pasting labels on the filled cans. These were shown by the Wight Labeling Machine Company of Boston, the Milwaukee Labeling Machine Company of Milwaukee, and Cornell & Knapp of Adrian, Mich. While the apparatus employed differed in details, the end aimed at by

each was to make the machine do as much as possible in handling the cans, applying the paste and attaching the labels.

Among the specialties shown which required no machinery were the following: The Raymond Lead Company of Chicago exhibited solder in all its various forms adapted to canners' use—triangular, wire, segments, drop and bar. E. W. Blatchford & Co. of Chicago also exhibited solder, making a tasteful display of the samples shown. Geo. H. King of Lynn, Mass., exhibited his new Scientific can opener, comprising in the one instrument four can openers for various shapes of cans. The National Key Opening Can Company, Masonic Temple, Chicago, exhibited their latest can opening device for opening cans by rolling the binding strip of metal round a key, thus detaching it from the can and avoiding the use of a can opener. The Morgan Box Machine Company of Rochester, N. Y., exhibited samples of their boxes made with dovetailed corners, claimed to be much stronger and cheaper than nailed boxes.

The Canadian Pig Iron Market.

The manufacture of pig iron in Canada is confined at present to the eastern portion of the Dominion, and is carried on by five companies operating seven furnaces. Four of these furnaces are in Nova Scotia, three running on coke pig iron and one on charcoal. The other three stacks are situated in Champlain and Drummond counties in Quebec and make charcoal iron. The capacity of the coke furnaces is placed at 75,000 net tons yearly and of the charcoal furnaces at 18,000 tons. The actual production in recent calendar years has been as follows: In 1890, 21,772 net tons; 1891, 23,891 tons; 1892, 42,443 tons, and in 1893 the production is estimated to have exceeded 50,000, over 40,000 tons being coke iron. The Canadian duty on pig iron is \$4 per net ton, or \$4.48 per ton of 2,240 pounds. Besides this protection the home producer receives a bounty of \$2 per net ton (\$2.24 per gross ton) on all that he makes.

In a recent issue of *The Iron Age* it was shown that the iron and steel requirements of Canada represented approximately an annual consumption of 600,000 net tons of pig iron. But as much the larger portion of the iron and steel used in the Dominion is imported in a more or less finished form, only a small part of the above mentioned quantity of pig is worked up in Canada. In the fiscal year of 1892 the imports of pig iron, including cast scrap, amounted to 68,918 net tons, and in 1893 to 62,793 tons. These imports, with the statistics of production given above, indicate an actual consumption in pig form of about 100,000 net tons.

The capacity of the existing furnaces if run continuously is nearly equal to producing this quantity of iron, but besides the ordinary difficulties which sometimes prevent the continuous operation of furnaces, the Canadian manufacturer is also handicapped by the necessity of always producing good foundry grades of iron. There is no market for mill irons, because all the rolling mills now active are specially equipped for rolling their products from wrought scrap, on which material a duty of only \$2 per net ton is imposed or half the rate on pig iron. Then again the Canadian furnaceman is

situated much like the pig iron maker of the Southern States in having to seek his principal market a long distance from his works—at Montreal and vicinity and westward in Toronto, Hamilton, London, St. Thomas and other Ontario towns, 1200 miles or more from the coke furnaces of Nova Scotia. Under these conditions, combined with slaughter prices for competing American iron, it is not likely that the present Canadian furnaces will soon produce and profitably market much over 60,000 tons of pig. Even with this home supply there would still be needed 40,000 tons from foreign sources to provide for the current rate of consumption. As before shown, much more than this quantity was imported in the fiscal year ended June 30, 1893, but the output of the Canadian furnaces has been considerably increased since that date. The imports of pig iron, including cast scrap, entered for consumption in the whole Dominion in the last two fiscal years, with the quantity obtained from the United States, are shown in the following statement:

	Total.		From United States.	
	Net tons.	Value.	Net tons.	Value.
1892....	68,918	\$886,485	25,110	\$383,154
1893....	62,793	766,567	30,464	408,610

Great Britain and the United States are the only countries from which Canada imports pig iron and Scotch foundry brands are the only ones brought across the ocean. In 1892 Great Britain sent 74 per cent. more pig iron than the United States to the Dominion. In 1893 imports from Great Britain decreased and those from the United States increased until the quantities received from the two countries were nearly the same. To-day the American producer is the only competitor the Canadian furnaceman fears. Even as far east as Montreal, while the total imports of pig iron have decreased at this principal port, the quantities coming from the United States have increased, as the following table of entries for consumption will show:

Quarterly Imports of Pig Iron at Montreal in 1892 and 1893.

Quarter ended	Total.		From United States.	
	Net tons.	Value.	Net tons.	Value.
1892.				
March 31.....	2,005	\$26,783	549	\$10,080
June 30.....	6,401	70,594	269	4,293
September 30.....	7,613	83,939	190	3,308
December 31.....	8,201	94,519	276	5,575
Total 1892....	24,220	\$275,835	1,284	\$23,256
1893.				
March 31.....	1,664	\$22,809	679	\$12,064
June 30.....	4,291	46,603	788	11,374
September 30.....	5,703	61,148	196	2,763
December 31.....	5,469	59,599	730	9,617
Total 1893....	17,127	\$190,099	2,413	\$35,838

But most of the American iron reported in the above table consisted of favored charcoal brands. American coke iron cannot compete in the Montreal market with the domestic product. It is in Ontario, among the stove, machinery, car wheel and pipe makers and general founders of that province that the chief market for American pig must be sought, and there is found the fighting ground between the American and Canadian producers. In proportion as the iron has to find a market westward is the advantage against the Cana-

dian and in favor of the American maker near the border, until at Toronto and neighborhood the duty is nullified by the freight on iron from Nova Scotia. But as the Canadian maker has also a bounty to fall back upon it is not an easy matter for the American to secure a profitable order against a Canadian competitor.

Among the lowest prices which Americans have deemed necessary to quote in order to secure orders in Ontario, the following have recently come to light and seem to be well authenticated: A border furnace offered to lay down at a point within 70 miles east of Toronto No. 2 foundry iron at \$12 per ton, ex duty; with the duty the iron would, of course, cost the buyer \$16.48. At this low price the order did not go to the American. A few days ago, however, a sale of American iron (No. 2 foundry) was reported as made by the Tonawanda Furnace, for delivery at Hamilton, duty paid, at \$16.08. This could scarcely have netted the maker more than \$10.50. Southern foundry iron is also reported to have been sold in the Ontario Peninsula, freight and duty paid, as low as \$16. The lowest priced Scotch iron, even if it could be brought freight free as ballast as far as Montreal, is out of the race at these rates. Nova Scotia No. 1 foundry is quoted at the furnace at \$12.50 per gross ton. With freight at \$5 per ton this iron can be laid down at Toronto or Hamilton at \$17.50. Making the average deduction in price for the No. 2 iron, it will be found that the domestic product can still meet at Hamilton the low rate quoted for American iron at that point, and without entrenching on the bounty.

It will therefore be seen from these figures that American iron finds a market in Canada not because it can profitably compete with the domestic product, but because it can be sold there for less than the Scotch pig and for the further reason that the Canadian furnaces cannot yet fully supply the home demand.

The present proportion of American pig iron to the total quantity imported in the whole province of Ontario is indicated by the following comparison of the imports into that province in the third quarter of 1893 with the third quarter of 1892:

Third quarter.	Total.		From U.S.	
	Net tons.	Value.	Net tons.	Value.
1892.....	9,629	\$121,454	6,939	\$90,171
1893.....	6,829	82,388	5,142	64,002

With free-trade for Canada the American maker would dominate her western and principal markets; with continued protection for the Dominion furnaceman the American can still supply at present low prices the 40,000 net tons or more which, in addition to the home production, will be needed yearly until furnaces are erected in Ontario, of which there is now some talk.

At Pittsburgh last week the New York & Cleveland Gas Coal Company commenced the redemption of the scrip issued to miners in their employ some six months ago, during the time of the financial panic. The scrip represents half of the men's earnings, and bears 6 per cent. interest.

In accordance with their usual annual custom, H. K. Porter & Co. of Pittsburgh, manufacturers of light locomotives, made a partial distribution of the profits of their business for 1893 to their workmen.

Calculation of Fuel Charges for the Iron Blast Furnace.—II.

A. P. BJERREGAARD, NEW YORK

Part III.—Example I.—(Con.)

For flux let us assume a rock of the following composition:

CaCO ₃	92.0
MgCO ₃	5.5
Al ₂ O ₃	1.5
SiO ₂	1.0
Total.....	100.0
CaO.....	51.5
MgO.....	2.6

Then 100 pounds of our ore mixture will require 34.9 pounds (*N. B.—The Iron Age*, October 5, 1893), which will be composed as follows:

CaCO ₃	32.11
MgCO ₃	1.92
Al ₂ O ₃	0.52
SiO ₂	0.35
Total.....	34.90
CaO.....	17.99
MgO.....	0.92

Of these 34.9 pounds stone, 19.78 pounds will enter the slag, thus:

CaO.....	17.99
MgO.....	0.92
Al ₂ O ₃	0.52
SiO ₂	0.35
Total.....	19.78

The gases will receive 15.12 pounds. Our stone then is composed as follows:

Slag.....	19.78
Gas.....	15.12
Total.....	34.90

In order that CO₂ may become of the same composition as the blast furnace gases, it must absorb seven-tenths as much carbon as it already contains. Hence we must multiply the amount of CO₂ generated by the stone by $\frac{7}{10} \times \frac{3}{11} = \frac{21}{110} = 0.1909$. And $0.1909 \times 4115 = 768$, which is the number of calories lost in the carbon absorbed by 1 pound of CO₂.

The caloric required by the stone is shown in Table II, which is arranged like that showing the amount of caloric required by the ore.

Table II.—Stone.

Reaction.	Pounds.	Factor.	Calories.
Sp. H. CaCO ₃ , 40° to 1,000° C.....	32.11	0.214	6,595
Sp. H. CaO, 1,000° to 1,500°.....	17.99	0.271	2,438
Sp. H. MgCO ₃ , 40° to 1,000°.....	1.92	0.227	419
Sp. H. MgO, 1,000° to 1,500°.....	0.92	0.244	112
[CaO + CO ₂] of flux.....	32.11	425	13,650
[MgO + CO ₂] of flux.....	1.92	213	409
Total H. fusion, slag.....	19.78	450	8,901
[CO ₂ + C].....	15.12	768	11,612
Gases, Sp. H. 0° to 32°.....	15.12	77.5	1,172
Al ₂ O ₃ , Sp. H. 40° to 1,500°.....	0.35	0.2170	118
SiO ₂ , Sp. H. 40° to 1,500°.....	0.92	0.1883	233
Total heat required by flux.....			45,679

There remains but one other form in which heat is absorbed by the furnace—namely, the loss by radiation from the walls of the furnace, the loss in tuyere and jacket water and that which

radiates into the foundations. We will class all these losses together and adopt Sir I. Lowthian Bell's figure for it, after reducing it to our unit. The loss by radiation could, of course, be determined in each case in the same manner as he determined it. But the loss in the water could hardly be found, since it is almost impossible to say how rapidly the water flows through the variously sized pipes. Moreover, the current is usually so rapid that the difference in temperature between the incoming and outgoing water is inappreciable.

Summing up our results, we find the total caloric required to be as below:

Caloric required by 100 pounds ore.....	175,315
Caloric required by 34.9 pounds stone.....	45,679
Caloric lost by radiation, &c.....	125

Total caloric required..... 221,119

This figure represents the amount of heat necessary to perform the work required of the furnace. It represents one side of the equilibrium spoken of above.

The next question is: How much coke or other fuel is required to establish the balance?

Suppose we have a coke of the following composition:

Water.....	1.5
Volatile.....	1.0
Fixed carbon.....	89.8
Sulphur.....	0.1
Ash.....	7.6

Total.....100.0

The ash we will suppose to be:

SiO ₂	53.03 or 4.03
Al ₂ O ₃	26.62 or 2.03
Fe ₂ O ₃	18.74 or 1.42
CaO.....	1.61 or 0.12

Totals.....100.00 7.60

This ash required for flux (*N. B.—The Iron Age*, October 5, 1893) 12.31 pounds of stone per 100 of coke, the stone being the same as that used for flux with the ore; 1.16 pounds of pig iron will be produced by the coke ash, thus:

Iron.....	1.10
Carbon.....	0.04
Silicon.....	0.02

Total..... 1.16

The 12.31 pounds of stone will be composed of

Slag.....	6.96
Gas.....	5.35

Total.....12.31

Hence from every 100 pounds of coke we shall have (sulphur calculated into the slag):

Iron.....	1.16
Slag, from coke ash.....	6.25
Slag, from flux.....	6.96
Gas, from coke.....	92.60
Gas, from flux.....	5.35
Total.....	97.95

Total..... 112.31

Material from stone..... 12.31

Material from coke..... 100.00

Before we can find how much heat our coke will yield, we must find how much is required to perform work within the coke itself, in melting and reducing impurities, losses in the gas, &c.

The amount of oxygen required by carbon to form carbonic oxide is one and one-third times the weight of the carbon. To form carbonic acid, twice as much, or two and two-thirds times the weight of the carbon. Since three-

tenths of the carbon burns to carbonic acid, and seven-tenths to carbonic oxide (*N. B.—Gruner, Blast Furnace Phenomena*), we have the amount of oxygen required by one unit of carbon in the furnace $\frac{3}{10} \times 2\frac{2}{3} + \frac{7}{10} \times 1\frac{1}{3} = 1.4$. That is, 1.4 pounds of oxygen are required by 1 pound of carbon to effect combustion in the furnace. But atmospheric air is employed to effect combustion, and it is composed of

Oxygen.....	23.185
Nitrogen.....	76.809
Carbonic acid.....	0.006

Hence for every unit of oxygen introduced into the furnace 3.31 units of nitrogen also are added. The carbonic acid and watery vapor in the air may be disregarded, since the first is infinitesimally small and the second is so extremely variable and at the same time very small, when compared with our unit of ore—*i. e.*, 100 pounds.

There are 90.8 (counting the volatile matter as C) units of C to be burnt, so that there will be $90.8 \times 1.4 = 127.12$ units of oxygen and $90.8 \times 1.4 \times 3.31 = 420.76$ units of nitrogen, and these values will be found in Table III, which is arranged precisely as Tables I and II.

Table III.—Coke.

Reaction.	Pounds.	Factor.	Calories.
Sp. H. coke, 40° to 1,000°.....	50	240	12,000
Sp. H. coke, 40° to 1,500°.....	50	436	21,800
Moisture, Sp. H. 40° to 100°.....	1.5	60.75	91
Moisture, Latent H. evaporation.....	1.5	607	910
Moisture, Sp. H. 100° to 325°.....	1.5	103.6	155
Slag from ash, total H. fusion.....	6.24	450	2,808
[Fe ₂ + O ₂].....	1.42	1,200	1,704
Latent heat fusion iron (ash and flux).....	0.08	46	4
Carbon to iron.....	0.04	4,115	165
[Si + O ₂].....	0.04	3,410	136
Stone, Sp. H. 40° to 1,000°.....	12.31	0.214	2,529
CaO, Sp. H. 1,000° to 1,500°.....	6.34	0.271	859
MgO, Sp. H. 1,000° to 1,500°.....	0.32	0.244	39
[CaO + CO ₂] of flux.....	11.63	425	4,943
[MgO + CO ₂] of flux.....	0.68	214	145
[CO ₂ + C].....	5.35	768	4,032
Total H. fusion slag from flux.....	6.96	450	3,132
Gas, Sp. H. 0° to 325° (C and H).....	90.80	77.5	7,037
Gas, Sp. H. 0° to 325°.....	127.12	77.5	9,852
Gas, Sp. H. 0° to 325°, N.....	420.80	77.5	32,604
Total heat consumed by coke in internal work.....			104,945

Now we are in a position to calculate the total net caloric yielded by the coke. This calculation is found in Table IV.

Table IV.—Net Heat.

	Pounds.	Factor.	Calories.
Caloric produced by fix. C.....	89.8	4,115	369,530
Caloric produced by volatile.....	1.0	13,316	13,346
Caloric introduced by blast, 550° C.....	597.9	0.238	78,270
Total caloric produced by coke.....			461,146
Total caloric consumed by coke.....			104,941
Net available caloric per 100 pounds coke.....			356,205

Hence 100 pounds of coke yield 356,205 calories in the furnace.

We have now the amount of caloric on both sides of the account; it remains only to establish an equilibrium. We chose to consider 100 pounds of ore as our unit. We could consider 100 pounds of coke as our unit and find how many pounds of ore and stone should be used with it. It seems, however, more appropriate, in spite of the usual custom to the contrary, to take as the unit that substance upon which we desire to act. Considering, therefore, the ore as the unit, we find that 100 pounds of ore with its flux require 221,119, while 100 pounds of coke yield 356,205 calories. We have, therefore, the proportion 100 : x :: 356,205 : 221,119, or,

$$\frac{221,119 \times 100}{356,205} = x = 62.07.$$

This part of the calculation may be expressed by the general formula

$$\frac{100(a+b)}{c} = x$$

in which

a = calories required by ore,
 b = calories required by stone,
 c = calories yielded by 100 pounds of fuel,
 x = amount of fuel, in pounds, required by 100 pounds of ore with its flux.

We see, then, that 100 pounds of ore with its flux in our example require 62.07 pounds of coke. But 100 pounds of ore yield 50.7 pounds pig iron, as shown previously, hence as 50.7 pounds of pig iron require 62.07 pounds coke, 1 pound of pig iron requires 1.22 pounds of coke, or 1 ton (2240 pounds) of pig iron require 1.37 tons (2000 pounds) of coke.

Our burden then is:

Coke.....	62.07
Ore.....	100.00
Stone.....	42.55

Of the stone 34.9 parts is for the ore, and 7.65 for the coke ash.

Expressed in terms usually employed at the furnace, we get:

	Pounds.
Coke.....	2,000
Ore.....	3,214
Stone.....	1,368

Example II.

In order to make the method perfectly intelligible we present another example in which the ore is a mixture of hematite and magnetite with anthracite as fuel.

Suppose the ore to be composed of:

Moisture.....	2.000
Ferric oxide.....	73.440
Ferrous oxide.....	12.960
Silica.....	7.500
Alumina.....	3.000
Phosphoric acid.....	0.005
Manganese oxide.....	0.095
Lime.....	1.000
Total.....	100.000
Iron.....	61.52

Expressed as before:

Pig iron.....	65.86
Slag.....	9.04
Gases.....	28.10
Total.....	103.00
Less C from coal.....	3.00
Balance.....	100.00

Let the limestone be:

CaCO ₃	87.30
MgCO ₃	10.00
Al ₂ O ₃	0.50

Fe ₂ O ₃	0.10
SiO ₂	2.10
Total.....	100.00
CaO.....	48.89
MgO.....	4.76
Gases.....	43.65
Iron.....	0.07
Slag.....	56.25

The fuel used (anthracite) we will take at:

Moisture.....	0.5
Volatile.....	3.5
Fixed carbon.....	88.0
Ash.....	8.0
Total.....	100.0

The ash we will suppose to be:

SiO ₂	4.5
Al ₂ O ₃	2.6
Fe ₂ O ₃	0.5
CaO.....	0.2
MgO.....	0.2
Total.....	8.0

Hence our anthracite will be composed of:

Iron.....	0.35
Slag.....	7.50
Gases.....	92.15

The ore will require 4.50 per cent. of stone for flux. The ore and flux will yield 65.87 pounds of pig iron, 11.04 pounds of slag and 30.55 pounds of gas. The coal will require 2.71 per cent. stone, producing 1.19 pounds of CO₂ gas, and together with the flux required by it will yield 9.02 pounds of slag.

In this example an abridged notation will be employed. The ore and stone will be treated together in one table in order to show how the method may be shortened in actual practice. Many other contractions are also used; for instance, the gas from the coal, from the flux and from the air of the blast is taken together instead of separately as in the first example, which served to show the details and the rationale.

Table V.—Ore and Flux.

Reaction.	Pounds.	Factor.	Calories.
Moisture, Latent H. evap.....	2	607	1,214
Moisture, Sp. H. 40° to 100° C.....	2	60.7	121
Moisture, Sp. H. 100° to 325°.....	2	103.6	207
[Fe ₂ + O ₃].....	73.70	1,200	87,840
[Fe + O].....	12.96	958	12,416
[FeO + Fe ₂ O ₃].....	43.20	38	1,642
Sp. H. Fe ₂ O ₃ to 1,500°.....	43.70	351.8	16,640
Sp. H. Fe ₂ O ₄ to 1,500°.....	43.20	319	13,781
Iron, Latent H. fusion.....	65.87	46	3,010
Slag, Total H. fusion.....	11.04	450	4,968
[Si + O ₂].....	2.50	3,410	8,521
[P ₂ + O ₃].....	0.005	2,818	14
C absorbed by iron.....	3	4,115	12,345
[Mn + O ₂].....	0.05	1,108	55
Gases, Sp. H. 0° to 325°.....	30.55	77.5	2,368
[CaO + CO ₂].....	3.96	425	1,258
[MgO + CO ₂].....	0.45	213	96
Sp. H. CaCO ₃ 40° to 1,000°.....	3.95	0.214	813
Sp. H. MgCO ₃ 40° to 1,000°.....	0.45	0.227	98
Sp. H. CaO, 1,000° to 1,500°.....	2.21	0.271	299
Sp. H. MgO, 1,000° to 1,500°.....	0.22	0.244	33
[CO ₂ + C].....	1.98	768	1,521
Sp. H. Al ₂ O ₃ 40° to 1,500°.....	3.02	0.217	957
Sp. H. SiO ₂ 40° to 1,500°.....	7.60	0.1883	2,090
Sp. H. MnO ₂ 40° to 1,500°.....	0.09	0.159	21
Total caloric required by ore and flux.....			172,328

Table VI.—Coal.

Reaction.	Pounds.	Factor.	Calories.
Sp. H. 40° to 1,000°.....	50	0.27	12,960
Sp. H. 40° to 1,500°.....	50	0.27	19,710
Moisture, Sp. H. 40° to 100°.....	0.5	60.75	30
Moisture, Latent H. fusion, Sp. H. 100° to 325°.....	0.5	607	304
Slag from ash and flux, total H.....	0.02	108.6	51
[Fe ₂ + O ₃].....	0.5	450	4,059
Iron, Latent H. fusion.....	0.35	1,200	600
C absorbed by iron.....	0.35	46	16
[Si + O ₂].....	6.02	4,115	24,822
CaCO ₃ , Sp. H. 40° to 1,000°.....	0.02	3,410	68
MgCO ₃ , Sp. H. 40° to 1,000°.....	2.37	0.214	487
CaO, 1,000° to 1,500°.....	0.93	0.227	208
MgO, 1,000° to 1,500°.....	1.49	0.271	199
[CaO + CO ₂].....	0.41	0.244	50
[MgO + CO ₂].....	2.37	425	1,007
[CO ₂ + C].....	0.43	214	92
Gas, Sp. H. 0° to 325°.....	1.19	768	914
Al ₂ O ₃ , Sp. H. 40° to 1,500°.....	645.0	77.5	50,000
SiO ₂ , Sp. H. 40° to 1,500°.....	2.62	0.217	830
Total heat consumed by coal in internal work.....	4.51	0.1883	1,240
Total heat consumed by coal in internal work.....			92,902

Table VII.—Net Heat.

	Pounds.	Factor.	Calories.
Generated by C of coal.....	88	4,115	362,120
Generated by CH ₄ of coal.....	3.5	13,346	46,711
Carried in by blast at 530° C.....	552.1	0.2371	72,000
Total heat yielded by coal.....			480,831
Total heat consumed by coal.....			92,902
Net yield of coal.....			387,929

Applying the formula already given,

$$\frac{100(a+b)}{c} = x,$$

we find that x , or the amount of fuel required by 100 pounds of ore, with its flux, equals 44.42 pounds.

Hence our charge is:

	Pounds.
Ore.....	100.00
Stone.....	5.73
Anthracite.....	44.42
Or,	
	Pounds.
Ore.....	4,502
Stone.....	258
Anthracite.....	2,000

The big tower at Wembley Park, near London, England, designed to rival the Eiffel Tower, is completed to the first platform, which forms the base of the actual shaft, and the work is being pushed with energy. England, it is announced, is also to have a gigantic wheel after the model of the Ferris Wheel. It is to be set up, says the report, near London, and will be 300 feet high, have 40 passenger cars attached to its circumference, and the tower supporting it will have eight platforms, fitted with restaurants and dancing floors.

A Canadian association for the promotion of good roads was formed last week in Toronto.

The Illinois Steel Company.

The annual meeting of the stockholders of the Illinois Steel Company was held on the 14th inst. in the company's offices in the Rookery, Chicago. There was a very full attendance, over 75 per cent. of the stock being represented at the meeting. The proceedings were harmonious, indicating the confidence reposed in the management. The election resulted in the choice of the following Board of Directors: H. H. Porter, Chicago; Nathaniel Thayer, Boston; Francis Bartlett, Boston; Morgan Rotch, New Bedford, Mass.; Marshall Field, Chicago; Norman Williams, Chicago; Jay C. Morse, Chicago; A. J. Forbes-Leith, New York; W. R. Stirling, Chicago; Robert Forsyth, Chicago; Francis Hinton, Milwaukee.

The directors elected the following officers: President, Jay C. Morse; first vice-president, W. R. Stirling; second vice-president, Robert Forsyth; secretary and treasurer, H. A. Gray. Executive Committee: Jay C. Morse, A. J. Forbes-Leith, W. R. Stirling, Robert Forsyth, Francis Hinton. The directors also appointed H. S. Smith, consulting engineer; W. A. Green, assistant secretary; James Sim, assistant secretary, New York.

Following is the fifth annual report, which was submitted by President Morse to the stockholders for the year ending December 31, 1893:

The net manufacturing profits for the year 1893, on basis of market values, amounted to.....	\$945,508.46
To which should be added dividends and interest on securities owned by the company.....	269,186.97
Gross profits.....	\$1,214,695.43
Less interest on debenture bonds, &c.	633,127.61
Balance of profits for the year.	\$581,567.82
We carried forward from the preceding year a surplus of.....	536,331.19
Total.....	\$1,117,899.01
In order to conform to the present state of the market for all classes of material, the inventory as at December 31, 1893, has been written down, and sundry accounts adjusted, involving a charge against profit and loss account of.....	\$1,351,142.73
We have written off sundry improvements.....	116,228.68
	\$1,467,371.61
Leaving a deficit as at December 31, 1893, of.....	\$349,472.60

Attention is called to the enormous shrinkage in values shown above. This occurred, in common with a shrinkage in all other manufactures and manufacturing material, during the last six months of the year, and it was this depreciation of material on hand, at that time, that entailed the loss on the year's business shown by the balance sheet. It is but reasonable to expect that with a change to better times, through an appreciation of values or a lower cost of production, this loss will come back in an increased profit.

The year 1893 being one of the most disastrous known to manufacturing industries in modern times, your company can congratulate itself that the

results of the year are no worse, when we consider that the stagnation of business was so great that its principal works at South Chicago were operated only eight and one-half months of the year; that the works at Joliet were operated for only six weeks; that the Union Works were idle during the whole year with the exception of a short run on pig iron; that the rolling mill at North Works was not in operation during the last half of the year, while the Milwaukee Works were unable to run full during a considerable period. Besides the curtailment of direct manufacturing profits incident to this falling off in business, a considerable diminution of income from investments in coke properties, cars, &c., was also suffered.

Of the issue of debenture bonds authorized by the Board of Directors in February last, upward of 96 per cent. of the total amount was taken by the stockholders in accordance with the terms of sale proposed in the company's circular. The remaining bonds are held in the treasury subject to disposal by the directors, as provided by the original resolution. The balance sheet shows that in addition to paying every floating indebtedness of the company it still has on hand a large sum, either in Government bonds, cash or short loans. This, when the times will warrant it, will be used conservatively for the purposes contemplated at the time the bonds were issued.

The net addition to property account during the year amounted to \$461,607.24, the greater part of which was on account of the open hearth plant and plate mill already under construction.

At North Works the addition to the beam fitting shop referred to in the last report has been completed.

At Union Works a mechanical contrivance for handling and breaking pig iron, authorized in 1892, was constructed.

At Milwaukee Works new busheling furnaces were constructed at a small outlay and a billet hammer put in position. These expenditures were more than offset by a sale of land not required by the company.

No addition was made to property account during the year for work done at the Joliet plant. A considerable sum had been placed to the credit of that plant in reserve funds at the close of the previous year, and from this fund extensive improvements were made, which greatly enhance the value of that property. An entirely new system of heating furnaces with electric charging machines was introduced in the billet mill, while in the steel works changes were made which not only materially increase the output, but are also productive of positive economies in cost.

A part of the property now represented by railroad stocks and bonds formerly stood in the plant account of the Illinois Steel Company and part in its salable assets, the remainder having been purchased and paid for during the past year.

An analysis of the balance sheet shows that at the close of the year the quick assets, consisting of cash, materials and supplies on hand, and bills and accounts receivable in excess of bills and accounts payable and accrued interest amounted to..... \$8,698,320.99

To this amount should be added the salable securities owned by the company (not including railroad stocks and bonds), viz..... 3,364,434.06

Making a total of.... \$12,062,755.05

of convertible assets, being equal to 91.38 per cent. of the amount of bonded debt outstanding in addition to their five plants and their railway securities.

The company's properties have been maintained in a thoroughly good physical condition. Expenses of management are believed to have been reduced to the lowest point at present consistent with safety and efficiency.

We received during the year 1,283,428 tons of raw material. We shipped during the year 422,784 tons of finished product. The total number of cars of material handled was 61,714. We paid in wages and salaries \$3,230,885.63, and employed an average number of 4264 men per day. Our purchases of miscellaneous stores and supplies other than raw material amounted to \$898,719.69.

The following is a condensed balance sheet from the company's ledger, December 31, 1893:

Condensed Balance Sheet, December 31, 1893.	
CREDITS.	
Capital stock outstanding.....	\$18,650,635.00
Five per cent. debenture bonds, 1910.....	6,200,000.00
Five per cent. debenture bonds 1913.....	7,000,000.00
Dividend scrip outstanding (due in 1913).....	93,013.67
	\$31,943,648.67
Bills payable (since paid).....	\$50,000.00
Accounts payable (since paid).....	813,356.51
Interest due January 1, 1894 (since paid).....	155,000.00
Interest accrued, not yet due.....	89,832.55
	\$1,108,189.06
Reserve funds for replacements, accidents and contingencies.....	331,170.68
	\$33,383,008.41
DEBITS.	
Net cost of real estate, buildings and machinery, &c., to January 1, 1893.....	\$16,794,814.85
Net additions in 1893.....	461,607.24
	\$17,256,422.09
Railroad stocks and bonds.....	2,515,747.46
Materials and supplies on hand.....	\$5,496,364.82
Cash on hand.....	559,300.35
United States bonds at cost.....	683,187.50
Call and short time loans on approved securities.....	1,160,497.18
Bills receivable.....	740,334.37
Accounts receivable.....	1,166,825.83
	\$9,806,510.05
Securities on hand.....	\$3,364,434.06
Other investments.....	90,422.15
	\$3,454,856.21
Profit and loss (deficit).....	349,472.60
	\$33,383,008.41

In the course of a paper on the magnetic concentration of iron ore, before the Engineers' Club of Philadelphia, Edward K. Landis reported that in 1882 he had occasion to make some very interesting experiments with a small model of the Anvil Furnace of the Pottstown Iron Company. Among other curious facts it was clearly demonstrated that the distribution of fine ore in a furnace was governed principally by the size of the bell, but was also influenced by the fluctuation of the stock line, showing that with a correctly proportioned bell and the maintenance of the stock at the proper line any modern furnace should handle the ordinary concentrated ores crushed to $\frac{1}{4}$ or $\frac{1}{8}$ inch mesh without the least difficulty.

The Uehling & Steinbart Pyrometer.

The want of an accurate, reliable and durable instrument for measuring high temperatures has long been felt by metallurgists and men of other professions dealing with high heats. Since the introduction of the fire brick stoves this want has been especially keenly felt by blast furnace managers. There is no practicable pyrometer in existence which will continuously and accurately indicate the temperature of the blast ranging from 1200° to 1600°.

The portable pyrometers now in use are neither accurate nor reliable, and require more or less manipulation before the temperature can be measured. They are inconvenient and require frequent repairs, and often there is added to the inaccuracy of the instrument the carelessness of the manipulator, so that the heat records are quite unreliable and are carried on more for the sake of form than for use as a positive guide.

platinum, which makes it durable at any temperature not too closely approaching the melting point of platinum.

The action of the pyrometer is based on a novel principle, which involves the law of the flow of gas through minute apertures in the following manner: If a closed tube or chamber be supplied with a minute inlet and a minute outlet aperture and air be caused by a constant suction to flow in through one and out through the other of these

stuffing box, *c*, which prevents any escape of the hot blast. To *c* is attached a metallic extension, *b*, provided with a coupling, *f*, and a $\frac{1}{4}$ -inch branch pipe, *a*, ending in a filter, which consists of a 2-inch pipe, *D*, filled with cotton, and open to the atmosphere by perforations at the bottom. Into the porcelain tube is inserted a small platinum tube, which lies in it loosely and extends to the bulb *E* in the hot blast main and is coupled to a copper tube, *g*, by the

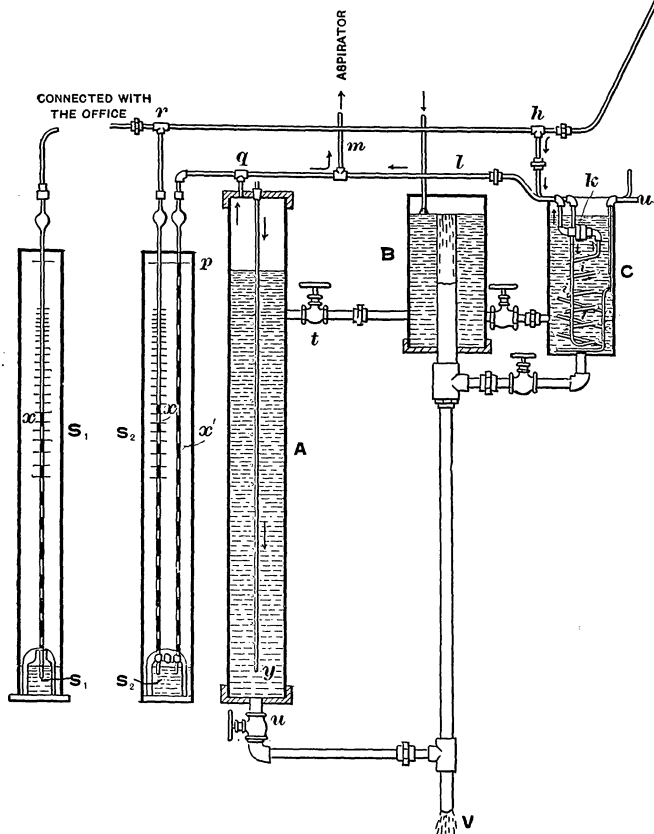


Fig. 1.—General Arrangement.

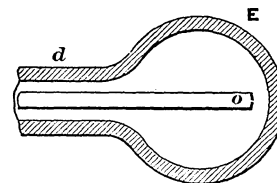
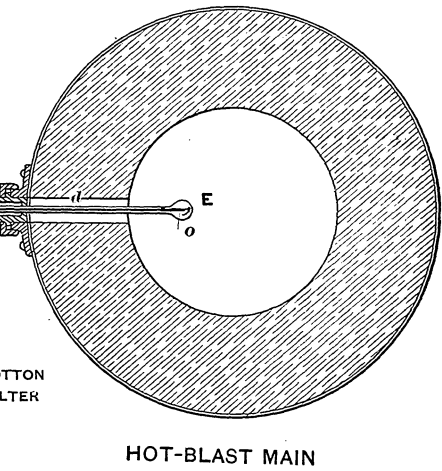


Fig. 2.—End of Porcelain Tube.

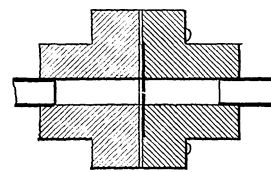


Fig. 3.—Coupling K.

THE UEHLING AND STEINBART PYROMETER.

After accuracy, continuous indication is the most important feature in a pyrometer for most uses, and especially for blast furnace use. Not only the stove tender, but the founder also, should be able to tell the heat of the blast at a glance, and thus know positively that his orders as to the temperature of the blast are carried out, without the necessity of going through the time-robbing operation of testing the heat by a portable pyrometer for the sole purpose of helping him guess at the temperature of the blast, which he does from the color of the blow pipes.

The accompanying engraving illustrates a pyrometer which is both accurate and continuous. The parts exposed to the heat are made of porcelain and

apertures, the tension in the chamber between the apertures will vary with the difference of temperature between the inflowing and outflowing air. Now if the inflowing air be made to vary with the temperature to be measured, and outflowing air be kept at a certain constant temperature, then the tension in the space or chamber between the two apertures will be an exact measure of the temperature of the inflowing air, and hence of the temperature to be measured.

The new pyrometer, which is the joint invention of Edward A. Uehling and Alfred Steinbart of Birmingham, Ala., consists of a porcelain tube, *d*, projecting into the hot blast main, to the shell of which it is secured by a

coupling *f*. The pipe *g* continues and is connected as shown and described below. To the branch *m* is connected the aspirator or suction pump actuated by a water or steam jet.

For the perfect operation of this pyrometer it is necessary that the air is sucked into it through the first minute aperture at the temperature to be measured through the second aperture at a lower but constant temperature, and that the suction be of a constant tension. The first aperture is therefore located in the end of the platinum tube *o* in the bulb *E* of the porcelain tube over which the hot blast sweeps.

The second aperture is located in the coupling *k*, surrounded by boiling water, and the suction is regulated by

a column of water of constant height. A is the suction regulator; it is made of a plain cylinder 7 inches in diameter and 5 feet long. Into the center of the top is inserted a small pipe, open to the atmosphere, which dips to within a few inches of the bottom. The top of the regulator is connected with the aspirator by the connection *g m*. The capacity of the aspirator is greater than can be supplied through the small hole *o* in the platinum tube located in the porcelain bulb E, and the deficiency is supplied through the central pipe in the vessel A and the air can only enter against the column of water contained in the latter. This column being kept at a constant height insures a constant suction. A also has an outlet at the bottom and an inlet about a foot below the top, connected with B. B serves as a reservoir to supply both A and C, and is fed by a constant stream of water through a $\frac{1}{4}$ -inch pipe at the top, the surplus overflowing through the central overflow pipe, as shown. The height of the water column in the regulator is indicated by the manometer X at *p*, which is connected with A at *g*, and can always be regulated to the exact height by the valves *t* and *v*.

C is the temperature regulator; it has the same diameter at A, and is 18 inches high. It is kept filled with water from B, and is provided with a drain pipe at the bottom.

The vessel C contains two coils, an outer one through which a stream of steam or hot air is conducted and which serves to keep the water in C at a boiling point, and an inner coil in which the air is brought to a constant temperature before passing the second aperture in *k*. The temperature of boiling water is taken because it is easily maintained, but melting ice or any other medium by which a constant temperature can be maintained will answer as well.

The action of the pyrometer is as follows: By means of an aspirator, not shown, connected at *m*, a partial vacuum is created, which, as soon as it reaches the desired tension, is constantly maintained by the regulator A. Atmospheric air enters through the filter D, when it is cleansed from dust and by *a b c d* into the bulb E, where it attains the temperature of the hot blast main and enters through the small aperture in the end of the platinum tube, thence through *o f g h*, into the coil *i*, located in the boiling water contained in C, thence through the second aperture in *k* and by *l m* to the aspirator. The tension between the apertures *o* and *k* is indicated by the manometer *x* on the graduated scales *S*¹ and *S*₂. With apertures of equal size and the temperature at E equal to the temperature in C, the column in *x* will attain about one-half the height of the column in X'. Now, as the temperature at E rises, the air expands and hence quantitatively less can enter through *o*, but as the temperature in C remains constant the capacity of flow through K is unchanged, and consequently the tension between the apertures approaches that of the suction more and more as the temperature rises higher and higher. As the manometer *x* measures this tension, it must also measure the temperature, and on a properly graduated index will indicate the exact degrees of heat at E. The pipe *h r* may be extended to any distance within reason and as many manometers attached to it as desirable. It is, for instance, quite practicable to have an index at each furnace, also one of each of the furnaces in a plant side by side in the engine room, and if desirable in the office as well.

This pyrometer is now undergoing a practical test at the city furnaces of the Sloss Iron & Steel Company, Birmingham, Ala. Its accuracy has been fully established, but its durability still remains to be fully demonstrated.

A Practical View of the Iron Ore Question.

The Minnesota Iron Company, whose general offices are in the Ellsworth Building, on Dearborn street, Chicago, are the largest iron mining company in the world. In addition to their extensive properties on the Vermillion and Mesaba ranges the company own 150 miles of standard railroad, with cars and locomotives sufficient to transport 2,000,000 tons of ore from the mines to their lake port from May 1 to November 15. They have four ore docks and eight steel steamers of the largest class, the total capitalization of the corporation being \$16,500,000. With these immense interests President D. H. Bacon said, in a recent interview with a reporter of the *Chicago Tribune*, that the company were waiting for the metamorphosis of business under the Wilson bill before he could say much regarding iron mining with all protection removed.

"Unlike many iron mining companies in the Lake Superior region," Mr. Bacon said, "we did not close down for the winter. We have kept right along mining, and will have, by the opening of navigation, 800,000 tons of ore ready for shipment. This has been mined at low wages, surface laborers receiving \$1 per day and miners \$1.40, which is certainly the lowest wages to be paid under any circumstances. Before the collapse of the iron trade last summer we were paying \$1.50 and \$2 per day for the same service. We have our railroads, docks and steamers, and the loss we suffer by mining when there is no market for our product is the interest on the money expended in getting out the product. We were indifferent whether our ore lay in the mines or on the docks along Lake Erie, excepting for this one item of interest. We had a large force of men who had to live, and our company are one of the few now at work.

"The actual cost of iron ore under present conditions can best be shown by taking the recently operated Mesaba range, which promises greatly to influence prices because of the ease with which the ore can be removed. We find, for a term of years, approximately the following:

Average royalty per ton.....	\$0.40
Rail haul of 70 miles to lake port.....	.80
Cost price of lake transportation.....	.90
Cost of mining50
Agent's commission and insurance.....	.15
Total.....	\$2.75

"It may be said of the Mesaba range that if the mines are worked strongly an output of 5,000,000 tons could be reached in 1895, the entire shipment from the Lake Superior regions in 1892 being 9,078,000 tons. The desirability of Mesaba ore has not yet been fully determined. Some of the most successful users of ore express the opinion, as a result of their trials, that about 25 per cent. of Mesaba ore will be the economical limit, the remaining 75 per cent. being supplied by the other ranges.

"The latest price I have heard quoted on Spanish ore is 5 cents per unit, or about \$3.10 per ton at tidewater. As for Cuban ore, so far as I know, nearly all that is brought into this country is for

the Pennsylvania and Bethlehem Iron Companies, who own the mines, and thus far Cuban ore has not appeared prominently in the market. We have little to fear from competition of Canadian mines along the north shore of Lake Superior.

"Now, taking up the items which enter into the cost price of our Lake Superior ore, the royalty to the owner of the fee ought to be reduced. These contracts were made in the flood tide of Lake Superior mining. Some of them provide for a sliding scale, but none go below 25 cents. Some owners are disposed to make concessions and others are obstinate. If the owners hold out for the full royalty, the mining companies must pay it or cease to operate. In estimating the cost of mining I took the most favorable mines, where the ore is near the surface and easily handled. On the other range the cost of mining will be greater. In addition to the cost of pumping these mines, experienced miners instead of laborers must be employed.

"The mines near Marquette get a lower freight rate both by rail and water than does the Mesaba, Gogebic or Vermillion. The price of lake transportation may fall with less cost of supplies and labor. Under present conditions \$1 is insisted upon for season contracts. In making this estimate all classes of boats engaged in the ore trade must be considered. While large and economical steamers may carry ore at an operating cost of 70 cents per ton, there will be many boats which cannot do the same at less than 80 cents or \$1, and in estimating the cost of freight all these must be averaged up. All this means that the most favorably situated Lake Superior mines will be able to lay iron ore down on Lake Erie at \$2.75 per ton. Doing this without profit to themselves, and at lower wages than have been paid in the mines since 1860, I cannot see how Spanish ore is going to make any serious inroads in the Central or Western fields. The moment you begin to send this foreign ore from the tidewater you must add rail freights. The Minnesota and other lake companies have sent much ore to the furnaces in the vicinity of Philadelphia, and there I suppose we will come into direct competition hereafter with Spanish ore, but there is one item not generally taken into account. This ore is brought from Spain by ships coming for grain or other American freight. It is often a matter of choice with them whether they take sand and sail for America or drop down to Spain and take ore for America for \$1.50 per ton. Should the demand for vessels in this trade materially increase we may expect freight rates to speedily advance. Say there is an advance of 50 per cent. per ton. There is two-thirds of the present protective duty gained for us."

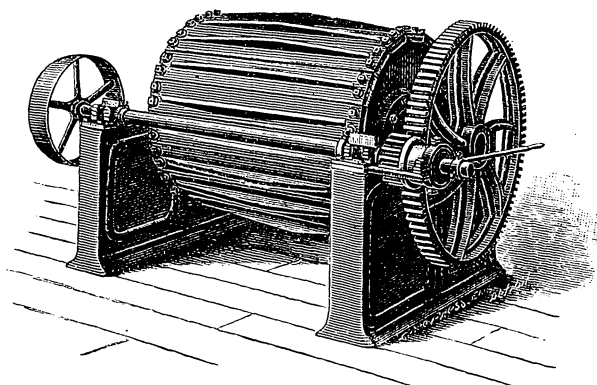
Joseph T. Ryerson & Son, the Chicago iron and steel merchants, have planned an eight-story extension to their warehouse, to be built at the northeast corner of Lake and Clinton streets. The building will cover an area of 80 x 50 feet. The first and second stories will be rented for commercial purposes. The building will be of the steel skeleton type, the exterior being of plate glass in the first story and pressed brick above. The interior will be made unusually substantial, the floors having a bearing capacity of 450 pounds to the superficial foot. At the present time only five stories will be completed.

A New Patent Sand Sifter.

The sand sifting machine shown in the accompanying cut represents a design patented and manufactured by the Detroit Foundry Equipment Company of Detroit, Mich., and Chicago, Ill. It is of the revolving type, having a funnel at one end into which the sand is shoveled, and being slightly enlarged at the other end to allow the gravel and dirt to work itself out free of the sand. It differs from the ordinary radial machine inasmuch as it is provided with inside revolving radial screens of a larger mesh than the outside screen. These inside screens thoroughly break up and pulverize the sand before it has an opportunity of falling through the outside screen.

The advantages of this improvement are numerous. This type of screen has been in use for some time in several foundries in Detroit and elsewhere and has been found of special value in mixing up sand for facing, &c., also in mixing core sand.

The screen is made so that it may be set on brackets or be suspended in hangers from above, and is suitably



A NEW PATENT SAND SIFTER.

provided with pulley, &c., complete, ready to set up. It can be made of any length, or fitted with any size screen suitable for the work to be performed.

THE WEEK.

From Ottawa, Canada, it is officially announced that the Dominion Government has decided to discontinue after March 1 the payment of bonuses to European immigrants taking up land in the Canadian Northwest. It has not been found that the system has had any appreciable effect in inducing immigration.

Over \$1,000,000 of the capital stock of the Old Colony and Interior Canal Company has been subscribed for, but ground will not be broken until \$2,000,000 is subscribed, so as to insure the plans for the new Cape Cod Canal being fully carried out. It is expected that the work will be completed within two years.

Captain McDougall, the inventor of the whaleback type of vessel, has submitted plans to the Government for a whaleback war ship. It is reported that the idea is likely to be tried on the lakes by the construction of an experimental vessel of this type.

It is announced that the origin a copy of the Declaration of Independence, preserved in Washington, will not

longer be placed on public view. It has been found that the text of the document is gradually fading from exposure. Not long ago it was discovered that a similar cause had rendered the original charter of the Commonwealth of Massachusetts almost illegible.

A boom in Mexican coffee lands is in progress. Millions of acres are said to have been acquired by American and English speculators.

A movement is on foot toward the consolidation of the pipe line interests of the United States which are outside the Standard Oil Company.

A bill, promoted by the Produce Exchange of New York City, has been introduced into the State legislature calling for an appropriation of \$1,000,000 for the improvement of canals.

Secretary Carlisle is credited with the purpose of doing away with the illumination of the Statue of Liberty in New York harbor for reasons of economy. It is claimed that the lights on the statue, which cost the government \$10,000 a year, are not necessary for pilotage purposes. In shipping cir-

supported a motion, introduced by the president of the league, condemning the erection of sky-scraping buildings, on hygienic grounds, and also on account of their inherent ugliness. They will draft a bill for introduction in the legislature dealing with these structures.

It is rumored that the Stability Board, of which Admiral Walker is head, and which was originally formed to inquire into the faults in some of the new war vessels, will be retained as a permanent feature of the Navy Department.

A recent estimate of the unmined anthracite coal of Pennsylvania places it at 4,000,000,000 tons. Of this total the Reading coal fields are credited with more than one-half.

The Riverside Association of New York City has taken a sensible step toward providing work for the unemployed by addressing a letter to all householders on the west side, urging the execution of necessary repairs on their houses now, instead of putting off the work until the summer. They have, moreover, created a labor exchange, where people who have work to be done can secure trustworthy men to do it.

A scheme for assisting the deserving poor and those out of employment has been started by a well-known clergyman in New York City. It is a pawnshop and loan office where they can obtain immediate financial help at the lowest possible cost. The enterprise has proved highly successful, and it is said to be backed by one of the wealthiest citizens of New York. Such has been the run on the pawnbrokers during the past six months that many are now discriminating closely in the loaning of money.

Disagreement in regard to the wage scale caused the closing of all the coal mines in the Massillon district, Ohio, on Saturday. Three thousand miners were thrown out of work.

A pamphlet recently published by *Bradstreet's* gives an interesting analysis of the causes of the 15,508 failures in business which occurred during last year. They are given as follows: Incompetence, 2546; inexperience, 940; lack of capital, 5194; unwise credits, 726; failures of others, 446; extravagance, 198; neglect, 481; competition, 191; disaster, 3463; speculation, 181, and fraud, 1142.

Secretary Herbert has refused to entertain a petition forwarded by the Central Labor Union for the opening of the Boston Navy Yard, on account of the heavy expense that would be entailed on the Navy Department in putting the yard into a proper condition for work.

The Manhattan Elevated Railroad of New York City has just provided itself with an addition to its equipment of 20 new locomotives, which are the heaviest yet put on an elevated road system. They were built at the Pittsburgh Locomotive and Car Works and are designed to haul a load of five cars, weighing 29,000 pounds each, on a grade of 2.5 per cent. and at a maximum speed of 25 miles an hour. The new locomotives have driving wheels 3 feet 6 inches in diameter, cylinders 12x16 inches and a boiler carrying a working steam pressure of 140 pounds. The total weight of the engine is 47,000 pounds, of which 33,000 pounds are on the drivers. They are equipped with the Eames vacuum brakes.

cles, however, the proposal meets with much disfavor, and it is generally hoped that this economy will not be pressed.

Scarcity of fuel caused much suffering and many deaths among the settlers in Western Kansas and the adjoining Territories during the late severe weather. Some of the railroads have offered to convey coal free to the districts where the greatest destitution prevails.

A New York wrecking firm has made an offer to the Navy Department to save the wreck of the corvette "Kearsarge," now lying on Roncador Reef. Nothing will be done, however, in the matter until the arrival of Admiral Stanton and the late officers and crew of the vessel, who are expected home this week.

France's foreign trade has fallen off to the amount of \$228,480,000 in the last two years. The returns for 1893 show, for that year, a decrease in imports of \$48,257,000 and in exports of \$48,695,000.

The sinking of a number of shafts in the Valley of San Marcial, Sonora, Mexico, has disclosed the fact that the district is rich in anthracite coal, which has been practically unknown in Mexico up to this time. A dispatch from Guaymas states that mining operations are to be begun at once.

The Architectural League of New York City, at a meeting held last week,

The Iron Age

New York, Thursday, February 22, 1894.

DAVID WILLIAMS, - - PUBLISHER AND PROPRIETOR.
CHAS. KIRCHHOFF, - - EDITOR.
GEO. W. COPE, - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - HARDWARE EDITOR.
JOHN S. KING, - - BUSINESS MANAGER.

Writing Off Depreciations.

The annual report of the Illinois Steel Company, which is published elsewhere, shows very forcibly how manufacturers have been obliged to struggle against adverse conditions the past year. President Morse says that "in order to conform to the present state of the market for all classes of material, the inventory as at December 31, 1893, has been written down and sundry accounts adjusted, involving a charge against profit and loss accounts of \$1,351,142.73." It is hardly possible that the adjustment of accounts, which evidently means an allowance for bad debts, could have amounted to \$300,000; but even assuming that this is the case, there has been a diminution of assets caused by the shrinkage in raw material values of over \$1,000,000. This is an enormous amount for one concern to write off, being more than 5 per cent. of its outstanding capital stock, and if it were on the right side of the ledger it would represent a neat profit. It occurs also at a time when the demand for the company's products is so far below normal conditions that a very large part of the plant is compelled to lie idle and unproductive, causing a heavy shrinkage in the earnings. The net manufacturing profits for 1893, on the basis of market values, amounted to but \$945,508.46, which it will be seen is considerably less than the depreciation in the materials carried over into this year. The Illinois Steel Company, fortunately, can endure this ordeal, having ample cash funds or assets quickly convertible into cash. But while the company's solvency is unquestioned, the stockholders receive nothing from their investment and can only look forward with such patience as they can command and hope for better times and better results in the future.

The experience of the Illinois Steel Company is undoubtedly paralleled by that of every other manufacturing concern in the country. All who have been obliged to carry large stocks of material have been affected in the same way, the extent depending on the magnitude of the establishment. If their figures were to be made public, as have been those of the Illinois Steel Company, the aggregate would be appalling. It is no wonder that wages have been heavily reduced and that all manner of economies have been practiced and that failures even then could not be averted. This experience has by no

means been confined to those who consume strictly raw materials. It extends along the entire line, including all manufacturers whose business requires them to carry good stocks of materials or to carry stocks of made up goods in their warehouses in anticipation of their busy season. It could not be prevented except by the entire cessation of business, which only happens in the direst necessity. The one course to pursue is to meet the situation heroically, as the Illinois Steel Company have done, and mark down values to their new level, thus readjusting business to another plane, on which calculations may be made with some hope of their proving favorable for the new year. If there should be an advance above this basis the apparent profits will be greater. If there is no advance the profits will be reasonably satisfactory, provided the volume of business enables factories to be operated on approximately full time.

When it is considered that last year's values were not deemed inflated, the depreciation which has occurred since then has been terrific. The decline has been beyond all reason. The iron market seems to have fallen by sheer dead weight, with no hard pan to stop it. In previous periods of depression costs cut an important figure. When manufacturers found themselves selling at actual cost, or a little below it, they made an effort to get better prices or retired from the field. But that was because they could not see their way clear to a replacement of raw material at lower prices. Now, however, raw materials are so very much cheaper than they have been that a different policy prevails. Recent prices of made-up products are based on the new and unprecedentedly low costs of materials and have therefore fallen so much under anything previously known. This should lead to more confidence in the stability of prices as they now run. No margin now exists for further shrinkage. Producers of raw materials are withdrawing from business rather than exhaust their resources for the benefit of others. The limit of the decline is thus set and hard pan is reached. On the new basis of costs, if the volume of business assumes anything like fair proportions, this should be a much better year for manufacturers than was 1893.

The Northwestern farmers are threatened with another monopoly, against which they are making a vigorous fight. This time it is the owners of threshing machines who have formed an organization and established a rigid schedule of prices for threshing wheat, considerably above that of last year. The combination would not be so formidable if the machine manufacturers were not supporting it. They have agreed to sell no machines to outside parties except for spot cash, while they sell or have sold machines to the members of the combination at three to five years' time. The cash terms impose a hardship on the farmers, as

they have very little cash to spare. Between the very low price of wheat and higher charges for threshing the farmer sees a poor outlook for the coming season. In justice to the machine manufacturers, it must be said that they defend the position of the machine owners, who have not been making more than expenses, and have therefore been unable to continue payments on the machines they have bought. The life of the farmer is certainly not a happy one if he depends entirely on one crop. He should diversify his products, just as manufacturers are obliged to diversify theirs when they find themselves getting badly hampered.

Rail Consumption at Home and Abroad.

We printed figures last week showing that the rail consumption of France in 1893 was only 129,338 metric tons. The recent publication of the estimates of the German state railways of their requirements for the fiscal year 1894-1895 is interesting in this connection as showing that a similar figure covers the needs of Germany. The estimate in question is 122,445 metric tons of rails, 41,506 tons of track material and 54,635 tons of steel sleepers, the latter, by the way, a significant figure. Only Germany does any really serious export trade in rails, so that the rail mills in France are limited to the narrow requirements mentioned. In other words, a modern American rail mill would have only about six months' business in either Germany or France. It may be imagined with what longing eyes producers there must look at our markets. The Germans do considerable export trade, the shipments of rails and track material in 1893 having been 124,848 metric tons. Last year was the worst for rails in the United States since 1885. Mr. Swank reports the total production of all kinds of steel rails at 1,036,353 tons. The shipments of standard sections from all the mills, including Pueblo, were 881,701 gross tons, as compared with 1,284,525 tons in 1892 and 1,388,186 tons in 1890. In the latter the Western mills, including Cambria, participated with 824,061 tons, while the Eastern works had 564,125 tons. In 1892 the West gained, the returns, including also Pueblo, showing a total of 869,313 tons, while the East was credited 435,212 tons. But in 1893 the West was by far the greatest sufferer, dropping nearly 350,000 tons, to 523,365 tons, while the East declined only 77,000 tons, to 358,336 tons. It is clearly shown by the returns, therefore, that dependent as they are to a greater extent upon new construction the Western works suffer relatively more than the Eastern mills, whose main business is like that of the plants on the Continent—that of taking care of renewals.

A very good plan is gaining headway which looks to a change in the nomenclature of one grade of pig iron which

has always been suffering under a misnomer. A very large tonnage of what is known as "gray forge" is marketed annually, the principal purchasers being the pipe founders. This grade of iron, of course, has nothing to do with the forge or puddle mill. The requirements are different and it is altogether wrong and misleading to give it the name which it generally bears. Sometimes foundry is added in brackets, making it read, "gray forge (foundry)." That is cumbersome and unsatisfactory. The best solution of the question yet presented is that of giving this grade of iron the name "No. 4 Foundry." It is to be hoped that the latter suggestion will be generally adopted.

The Chicago *Herald* amuses itself by endeavoring to establish an argument against the stand taken by the potters and the makers of collars and cuffs for a new basis of wages. It resorts to the ancient method of *reductio ad absurdum*, and professes to believe that if wages here were to be regulated by those abroad it would be necessary to take Chinese and East Indian "schedules," because the lowest wages in the world are paid there. As such an arrangement would be a palpable absurdity, *ergo* the whole idea is eminently nonsensical and absurd. Arguments of this kind are ingenious and readable, but they are not convincing. It is admitted that in many cases American manufacturers have established for their products such a high reputation that they have built up an important foreign trade, notwithstanding the very high wages paid here and the comparatively high cost of materials. Taste, accuracy, adaptability, efficiency and durability have their market values as well as mere material and labor. Leaving specialties, however, and coming to staple articles, price alone controls the market and the cheapest goods crowd out those that cannot be made so cheaply. Labor then cuts an important figure, and no manufacturer in the competition can afford to pay double or thrice the rate paid by another competitor unless the latter is handicapped in some way. We hope that the *Herald* is right and that we are wrong, because we are in favor of American workmen receiving high wages. When they are well paid the country is most prosperous. The *Herald* is welcomed to the ranks of those who believe in well-paid workmen. We had a suspicion hitherto that it believed in low wages, on the ground that a workman was then just as well off because he could buy the necessities of life at a correspondingly low rate.

The next meeting of the Western Foundrymen's Association will take place at 2 p.m. on Wednesday, February 28, in Rooms 702-703 Temple Court Building, 225 Dearborn street, Chicago. A paper by Simpson Bolland, entitled "A Foundryman on Foundry Chemistry," will be read.

CORRESPONDENCE.

The Niagara Turbines.

To the Editor: My old friend, Emile Geyelin of R. D. Wood & Co. of Philadelphia, has started the first wheels in the new Niagara Hydraulic Canal. This is one of the wheels which I mentioned in my letters to *The Iron Age* a year ago as giving very high results, and being very popular under low heads; and it now seems that Mr. Geyelin is trying it under a high head, by the very simple plan of inverting the wheel, allowing the weight of water in the feeder to lift the wheel and shaft instead of bearing down upon the step.

I am only sorry that Mr. Geyelin did not adopt the horizontal shaft, as he has done so successfully at Willimantic and other places, and thus save all the load of shaft and gears, which, by an approximate calculation, I make to be about 43,000 pounds.

Now, the weight of the column of water in the feeder, as described, would be 1,292,580 pounds, and if divided on three wheels would give a pressure of 430,860 pounds on each wheel, so that 10 per cent. of the power of the water is used to take the load off the step of the wheel.

Now if the wheels give 84 per cent. of the power of the water, as shown by my tests of similar wheels, and we deduct 10 per cent. for weight of shaft and 5 per cent. for gear friction, it only leaves 71.40 per cent. net effect, which, however, is all utilized in the paper mill. If, by electrical transmission, this were reduced to 80 per cent. again, we should only have 57 per cent. of the water left. Now I must confess an entire ignorance of the character of the rock through which the vacancy is cut, but suppose it to be a somewhat porous sandstone, as shown below the falls, and if the tail race cut could be successfully accomplished I see no difficulty in excavating a series of vaulted chambers parallel with and 20 or 30 feet distant from it and on a 20-foot higher level.

These could be arched over inside with light enameled brick, heated by steam, and lighted by electricity; contain the wheels and generators on the same horizontal shaft, and by draft tubes utilize the whole fall without step or gear friction, or any waste of power, and my experience has taught me that "waste is a sin" under any conditions.

The wires from the generators can just as well transmit the power from the pit without loss as to take it after it has been brought up by heavy shafting and a good 100 horse-power boiler "up on deck" would warm the pits so as to make them habitable and furnish power for lighting at any time when the wheels were not in operation. Why do they not try this plan?

HYDRAULIC ENGINEER.

The Jeffrey Mining Machine.

To the Editor: We note in your recent issue that you referred to the meeting of the miners and operators of this State, held in this city, and that reference was made to our mining machine as the Lechner machine, and in some cases as the Legg machine. Our machine formerly did go by the names of Lechner and Legg, while our name at that time was the Lechner Mfg. Company, but it has since been changed to the Jeffrey Mfg. Company, and we

now refer to our machine as the Jeffrey machine.

JEFFREY MFG COMPANY.
COLUMBUS, OHIO, February 17, 1894.

OBITUARY.

JAMES B. SCOTT.

James B. Scott, one of the most widely known citizens of Pittsburgh and throughout the entire State of Pennsylvania, and senior member of the firm of James B. Scott & Co., tin plate manufacturers, at Pittsburgh, died at his residence in Allegheny City, Pa., on Tuesday, February 13, at 3.30 p.m. The immediate cause of death was diabetes. Previous to the Johnstown flood Mr. Scott had a constitution of iron, but the exposure he underwent at the scene of the disaster did much to take the temper out of that splendid constitution, and since that time the deceased had often known what it was to be subject to pains and ailments.

Mr. Scott was chairman of the Pittsburgh Relief Committee, formed at the time of the Johnstown flood and was chairman of a like committee at the time of the Oil City and Titusville disaster. For nearly a score of years past he had a leading part in every public undertaking up to the time of the forming of the committee of citizens to arrange for the holding of the next National Encampment of the Grand Army of the Republic.

Mr. Scott was one of the vice-presidents of the Chamber of Commerce; a director in the Real Estate Savings Bank; was formerly chairman of the Board of Trustees of the Western University and was prominent in getting the institution established in its present quarters; he was at one time a trustee of the West Penn Hospital and was a vice-president of the Pittsburgh Library Association.

He was chairman of the Carnegie Library Commission of Allegheny, and chairman of the commission that has in charge the erection of the Carnegie Library, Music Hall and Art Gallery at Schenley Park.

Mr. Scott was essentially a self-made man. He was born on February 20, 1839, in a house on Third avenue, near Ferry street, Pittsburgh. His father was a contractor. Deceased left the public school he attended to go into the employ of Park, McCurdy & Co., at the same place where Mr. Scott's business house now stands. He continued with the firm till he had purchased an interest, and finally his name appeared at the head of it. He was married in 1867 to Anna W. Jacobus, daughter of Rev. M. W. Jacobus, at that time of the Western Theological Seminary faculty. Five children, a son and four daughters, were born, and all, with the wife, are living.

THOMAS JOPLING.

Thomas Jopling, manager and director of the Otis Steel Company, died at his residence in Cleveland, Ohio, on the 18th inst., after an illness extending over three months. He was one of the originators of the Otis Steel Company, and widely known as a business man of ability and character. Mr. Jopling was born in Northumberland, England, January 23, 1842. At the age of 21 years he came to the United States, settling in Western Pennsylvania, and connecting himself with the coal mining industry. In 1870 he went to Cleveland, and, with Charles A. Otis, formed the Otis Steel Company, with which concern he has been identified ever since.

Priming.

The second meeting of the members of the American Society of Mechanical Engineers was held in the hall of the society on the 14th inst., the introductory address being made by Prof. John E. Sweet of Syracuse, N. Y., his paper bearing the above title. From his address, the opening of which clearly outlined the object of these meetings, we take the following:

If I rightly caliper the aim the promoters of this monthly meeting scheme had in view in selecting some one member to open the discussion, it was with a view of having that individual discuss something of interest, or say something that shall inspire others to discuss it; and the object of the discussion is for the exchange of thought, the advancement of our engineering knowledge and practice, or the heralding of our mechanical achievements as a sort of mutual admiration society in disguise.

In considering the present let us review the past; and trusting you will allow me, I will go back to the first step in the stairway of my interest in steam engineering—the Exhibition of the Royal Agricultural Society, at Battersea Park, in London, 1862, or 31 years before the Columbian Exhibition at Chicago.

I remembered that there was a lot of portable engines there, and so turned back to some printed letters written home at that time and find this paragraph: "But one still greater feature than all was the almost incredible number of portable steam engines—83 different ones—all with steam up and going at the same time and driving threshing machines, straw cutters, grist mills, tile and brick machines, &c. Six or seven were traction engines."

To this I might add something about steam plowing, which was then and still is successfully practiced in England, and the steam road rollers, which were common; but I do not call up this subject to show how we outstrip all other nations (in following in their footsteps), but to call attention to this branch of steam engineering (which has not been thus far considered) and to describe one of the many things I saw at Chicago which excited my liveliest admiration.

A traction engine of not the largest size, built somewhere in Ohio, well invented, not very well designed, frivolous in some of its details, and deplorable in workmanship, was harnessed to a 5-ton load of pig iron piled on a stone boat. The engine hauled that around over the dry ground with as much indifference as if it had been so many pigs of pork. It went down into the canal, wallowed around like a sea lion, and out up a bank where one would not expect to see a team draw up a wagon. It was driven up to a railroad track where the ties had been blocked up until the tops of the rails were 2 feet above the level. The engine mounted this obstruction diagonally, first one forward wheel, then the other; then alternately the back wheels in like manner, running along over the ties and turning off diagonally as it had mounted—in fact, performing the feat precisely as an elephant would have done, and with like ease and indifference.

I was so astonished at this exhibition, so elated to see the justifiable pride shine out of the builder's countenance, that I did not stop to consider then, as I hesitate to question now, whether it would not have been better

to build the engine with less of the spirit of a gymnast and more in the line of durability in its legitimate work. Allowing the thing to be worth doing, the man who did it is never likely to receive half the credit he deserves. When the means are compared with the end, the builders of stationary engines and locomotives may take off their hats to the builders of traction engines, and call them brothers.

The next step on the exhibition ladder was the Paris Exposition of 1867. At that exhibition two engines of mark beyond all others set their hands upon the industrial world, and have held them there for a generation—the Corliss engine from the parent works at Providence, and the Porter-Allen, built by Whitworth. While the Porter-Allen was admired and the maker's name demanded respect, it was too novel, untried, or for some reason did not take root in Europe. The Corliss engine, new to the Continent, was admired for its silver jacket, polished bonnets and general trousseau, ridiculed for its complexity, but understood by the leading engineers of Europe. Although Mr. Corliss had no Continental patents, it was taken up by three or four of the leading manufacturers, and royalties paid the same as if he had held patents—honorable deed, certainly; and if they have been reciprocated in like manner to the least extent, the fact is not generally known. In plain English, if any American has paid a foreigner royalty on an unpatented invention, some of his friends should make it known.

Mounting the third step of our experience—the Centennial. While compound engines were quite common in Europe and on the sea, and Adamson had, I think, built his quadruple, none were shown at Philadelphia; in fact, our own engineers did not believe in them. Although the single cylinder engine has been transformed into many shapes, it had then reached a pretty high state of completeness; the Buckeye, the only engine shown at both Chicago and Philadelphia, and the Corliss had reached the forms they followed for many years. The Corliss enterprise, with its two single cylinders, walking beam and 30 foot cut gear, was one of the grandest steam engine monuments in its impressiveness ever erected; but, judged in the light of the present practice, showed (as Mr. Porter pointed out at the time) just how not to do it. In explanation of this statement, it may be well to give the substance of a friendly criticism of the great Corliss triumph, held under its own shadow. It was, as you all remember, a beam engine with two 40-inch cylinders, 10-foot stroke, two walking beams coupled to the two cranks of a shaft carrying a 30-foot gear working into a pinion some 12 feet in diameter, the engine making from 35 to 38 turns, and the second shaft about 90. By what process of reasoning our conclusions were arrived at I do not now remember, but it was agreed that two 40-inch cylinders at 4 feet stroke directly connected to the second shaft and run at the same piston speed would accomplish the result at an immensely less expense. The whole Chicago display shows that is what would now be done; and while Mr. Hemenway* allows that there has been a gain in pumping engines of only 20 to 25 per cent., I am sure the Allis

* Mr. Hemenway read the paper at the first meeting, the title being "The Development of Stationary Engines, as illustrated by those exhibited at the World's Fair."

Chicago engine will harvest 2 horsepower from the sowing of the same amount of coal that it would take to get one from the Corliss Centennial; which, as it was specially suited to compounding, and yet was not compound, shows that Mr. Corliss at that time had not been convinced that there was enough advantage to go to that slight additional expense.

I am well aware that it is almost sacrilegious to criticise the design of that wonderful Centennial monument, but shall do so in the belief that the very audacity of the thing will emphasize the point I wish to make. The design was in two distinct styles intermingled, just the wrong thing to do as well in machinery as in building. The framing was of the most severe straight lines, almost seeming to be simply a reproduction in iron of its wooden prototype, while the beams were in graceful curves and the level arms of the valve motions not curves, but crooked and freely graceful. Milan Cathedral and the Corliss engine are noble examples of mixed architecture, but noble in spite of the mixture and not because of it.

Of the dozen or two engine builders, both those who allow that their engine beds are of the Porter-Allen type, and those who build the same thing without the allowance, adhere persistently to the overhanging cylinder, and remodel the graceful contour of the bed (which has never been equaled) with a freedom wonderful to behold.

They not only hang to the overhanging cylinder, but hang on another one, in looking at which I can only think of an old man turning his back to the job, catching his boy and holding him out at arm's length, and the two working away with the old man's posterior as the business end of the combination. Some of them, fearing the boy will get tired, put a crutch under his back.

In the most recent developments of the man and boy scheme, as it appears to me, the old man sits down on the foundation and takes the boy in his lap; each, however, true to his association, holds to the overhanging cylinder.

Through the kindness of the various builders I have been able to get a pretty accurate statement of the number, size, kind and power of the various engines of from about 100 horsepower and upward at the Columbian Exposition. The list does not comprise the small engines, of which, perhaps, there was 150 horsepower, all told, nor does it include pumping, air compressing, gas engines, portable or semi portable, of which no guess even has been made.

There were 29 single cylinder engines, aggregating 4820 horsepower; 47 compound engines, aggregating 24,930 horsepower; five triple expansion engines, aggregating 3925 horsepower, and one quadruple engine of 3000 horsepower, making in all 82 engines of a total of 36,675 horsepower, exceeding the "Campania" by 7000 horse power, making it likely the greatest aggregation of steam power ever assembled in so small a space.

Considering the engine exhibits at Chicago in the order of their magnitude, the 7700 horsepower of Westinghouse, Church, Kerr & Co. was so far beyond anything ever before shown by one exhibitor as to set aside comparison. Their standard and compound engines, which have been on the market for a decade, call for no comment except that inspired by the wonderful growth of the industry. To install an experimental engine at an exhibition is a very

risky thing to do; to install six experimental 1000 horse-power engines of entirely new design, embracing untried mechanical devices, was a courageous one and one that entitles the company to as liberal consideration as the result requires to make the account stand on the creditable side. The new feature of air spring to balance the weight of valve mechanism and at the same time to serve as starting bar was as good a scheme as the many other good schemes shown by other builders.

The 3000 quadruple Allis was too large for my comprehension, and I only raise the question whether the addition of the new feature to prolong the cut off and thus increase the range of power is the best way to accomplish the result.

The Willans experiments tend to show, so far as an experiment with his style and that size engine can determine, that the superiority of automatic cut off over throttling is less conspicuous on a compound than a single cylinder, and shows that there is very little or no economy at all in a triple expansion. If this applies to all multiple cylinder engines, then it may be possible that it is the best plan to reduce the valve motion to the simple elements and govern by a throttling governor. If this will hold good in the case of the Allis engine, of course the same points come up in the Buckeye, Fraser & Chalmers, and others showing novel motions whose aim is in the same direction.

There is a more or less tendency to mix the shaft governor and Corliss valve, as shown by three or four different examples, the aim being to retain the good points of the Corliss valve and be able to run at higher speed. A promising scheme.

Among the marked novelties in engines—I mean a complete engine—that by La Vals of Sweden was one of the most conspicuous. Being myself the grand-nephew of a rotary engine, and this being a rotary engine, I speak as a relative, and venture to predict that, notwithstanding the 10,000 American patented rotary engines, this little Swedish bumble bee of a thing is nearer seeing the daylight of success than any other before exhibited. While it employs the principle of a Pelton water wheel, it possesses just those additional elements not in the Pelton wheel that make it a promising advance.

The Willans engine, while nearly as old as many well-known American engines, is new to us and remarkable in many respects, but particularly for its economy in spite of what we have supposed to be detrimental features—throttling, single acting, mechanically fitted valves and high speed. But these defects, whether imaginary or real, are overcome or neutralized, and other advantages come in naturally, so that, while at first sight the claims for its economy are questioned, there is a lot of genuine steam engineering in it. Besides the low clearance, free escape for water and no loss from compression, the main thing lies, I believe, in the fact that the steam end of neither cylinder is ever in communication with the one of lower pressure or with the condenser. I spoke of the enormous growth of the Westinghouse; that of the Willans has been phenomenal—20,000 horse-power last year. We are prone to joke over the slow, conservative English; but perhaps they know a good thing when they see it, after all.

For great power in small space, the claim we make for our high speed engines, it seems to me about an even send off between the Westinghouse,

Willans and that crowning feature of the engine display, the triple expansion 1200 horse-power in the German exhibit. Personally, I have not much to say about this engine. Though I went by it several times a day for three months, it was never my good fortune to be there when they were making repairs, and so I could see no more than other visitors. Another engine of like power and occupying much more space and far more pretentious seemed to be in a chronic state of repair mostly.

Of all that was said at the previous meeting, nothing pleased me more than Mr. Holloway's remarks about the Creusot engine. It was not only by far the best piece of machine work I ever saw, but up to the present time I believe it would be utterly impossible to produce the like in this country, and for the same reason that we could not produce work like the "Venus de Medici" or Raphael's "Transfiguration."

As shown by the exhibits at Chicago, the standing appears in this way: The largest and most economical, and probably as economical as has been thus far built, was the Allis engine; the largest exhibit by any one firm was that of the Westinghouse, both American; the most economical high speed engine the Willans, English; the best piece of steam engineering, the German; the best rotary, Swedish, and the best workmanship, French.

Discussion.

The discussion was opened by Mr. Holloway, for the purpose, he stated, of starting the ball rolling. In regard to the Centennial engine, he said that it was true that it was a monumental machine in many ways. He alluded to the fact that it was now on exhibition in the Pullman Palace showrooms while other engines were doing the work. While there were not so many wide departures at the Chicago Exposition, yet the matter of compounding has brought in new questions.

Mr. Cartright said that he heartily agreed with Professor Sweet when he said that you might have the right engine in the wrong place. While he was not connected with any engine works, he had been a user of steam engines for a great many years, and that had always been his experience. When frequently told to put in a Corliss engine, he had declared that he would not have a Corliss engine in that place under any circumstances. A Corliss engine is good when you are running 20 hours out of the 24 for a year, but I want to use it intermittently. I do take off my hat to that German engine, and I think it was the only engine on the ground that was a first-class engine.

Mr. Emery said the German engine was, next to the matter of castings, the best finished work there, and it was a very creditable piece of work. It, however, only ran at a hundred revolutions a minute, and compare that—only half a load, which was a fact—with the work done, for instance, by the engines of the "Paris" and "New York." The speeds are about the same. They run perfectly smooth, and that working at their full capacity. That shows what a marine engine can do and it puts the German engine in its proper light. The most prominent feature was that it was provided with an American cut off. Another engine off in a remote corner of the grounds was the most creditable. It was an engine built by the Lake Erie Engineering Works. It was of the marine engine type, handling a generator very much heavier than the load

for that engine, and would stand right up to its work. Notwithstanding these extreme strains it ran without any assistance from any other engine. I was particularly impressed with the large number of engines with single valves regulated by the governor, compound and single, all working well.

Another gentleman said in regard to the Corliss Centennial engine that while it was not of the best design and had been the subject of ridicule, it was his good fortune to be acquainted with Mr. Corliss, the designer, who always had some object in view when he was designing an engine. He designed the Centennial engine for a big engine, and it must be born in mind that while he was building that engine he was designing an engine as good as any that has ever been built since; he referred to the Pawtucket pumping engine.

Mr. Kent thought that steam engineering was undergoing a transformation. It looks as if within the next two years the engine builders of the country would be called upon to revolutionize their shops and prepare to build some other engine from what they are now building. The slow speed of the Corliss engine is likely to be driven out to a large extent by the marine engine, and it is a question whether that is the coming type. There have been a good many criticisms of that engine on account of its supposed instability on account of vibration, &c. Is there really any serious objection why the marine type should not be the engine of the future?

Professor Hutton said that in 1879 he was called on as an advisory engineer at Columbia College to select an engine for driving a ventilating fan. They wanted a high speed engine, and they agreed that the only engine that met the requirements was a Porter-Allen. Mr. Porter was unable to furnish them with an engine when they wanted it, and the contract went to the only other high speed engine builder, the builder of the Buckeye engine. That was only three years after the Centennial, and at that time there were but two high speed engines on the market, and when Professor Sweet was asked to give the opening paper at the inauguration of the Society of Mechanical Engineers he was asked that he give the special features of construction of his Straight Line engine. When you consider that all this development of the modern engine as at Chicago is the development of these comparatively few years, you can appreciate how rapid the development has been. We do not yet know exactly what will be the future and staple type of the steam engine.

Commodore Loring said that the locomotive boiler as built for locomotive use has always been a failure when it was attempted to use it on land or at sea. There seems to be something in the peculiarity of the service which enables it to do things which the gentle motion of the sea makes it impossible to do. It is necessary to provide some method by which the ascending and descending currents can be established. There have been repeated efforts to apply the locomotive boiler to marine use, but they have always been failures.

A number of the members swapped stories of old and antique engines of which they had knowledge, dating back as far as 1812, some of which (both engines and stories) are still in use.

A dispatch from Spring Valley, Wis., says that the charcoal furnace of the Eagle Iron Company has been started.

MANUFACTURING.

Iron and Steel.

Electric cranes in the yards of the Homestead Steel Works, Homestead, Pa., are rapidly displacing many Hungarian laborers, and they are leaving that place in large numbers for other points. A party of about 50 left last week for Youngstown, Ohio.

The annual meeting of the stockholders of the American Tube & Iron Company was held in the main offices of that concern in Middletown, Pa., last week, the following officials being elected: Col. James Young, president; George Matheson, vice-president; A. S. Matheson, general manager; F. Musselman, secretary and treasurer; James H. Matheson, superintendent; James Young, George Matheson and A. W. Momery, directors. After the meeting, in accordance with his annual custom, Colonel Young lunched the officers at his home.

At the annual meeting of the stockholders of the Bethlehem Iron Company held at Bethlehem, Pa., on Wednesday, the 14th inst., the capital stock of the concern was increased from \$5,000,000 to \$10,000,000. It is stated that the additional capital will be used in making large improvements and additions to the plant.

Last week notices were posted at the plant of the Reading Rolling Mill Company, Reading, Pa., announcing a reduction in wages of from 10 to 25 per cent. Puddlers were reduced from \$3 to \$2.50 per ton, laborers from \$1.10 to \$1, puddlers' helpers 24 cents a heat and roll changers one-half. The reduction went into effect on Saturday, the 17th inst.

The sheet and galvanizing departments of the Soho Iron & Steel Works of the Moorhead-McCleane Company, at Pittsburgh, Pa., continue in full operation, giving employment to about 400 men. The other departments of this plant remain idle, with no prospects of immediate resumption.

Additional departments of the plant of the Cambria Iron Company, at Johnstown, Pa., which have been idle more or less for some months past, were put in operation last week.

At the annual meeting of the stockholders of the Bellaire Nail Works, Bellaire, Ohio, held last week, the old Board of Directors was re-elected. J. R. McCortney was re-elected president and A. B. Carter secretary and treasurer.

The annual meeting of the stockholders of the Oliver Iron & Steel Company of Pittsburgh, Pa., was held in that city on Tuesday, the 13th inst. The election of officers resulted in H. W. Oliver being elected president; John Phillips, vice president; James B. Oliver, treasurer; E. G. Applegate, secretary, and H. W. Oliver, D. B. Oliver, J. B. Oliver, John Phillips, and D. A. Moore directors.

At Wheeling, W. Va., last week an adjustment was effected between the insurance company and the Whitaker Iron Works of that city over the loss of the plant of that concern, which was destroyed by fire in December of last year. The concern will at once rebuild the burned portion of their plant, and on a larger scale than before.

The annual meeting of the stockholders of the James P. Witherow Company, engineers and contractors, of Pittsburgh, with works in New Castle, Pa., was held in the first named city on Tuesday, the 13th inst. The old Board of Directors was re-elected, consisting of L. Raney, Henry M. Atwood, Geo. Best, James P. Witherow and R. S. Smith. L. Raney was re-elected president and Geo. Best treasurer. The assets of the company were reported to be \$335,814.65, and the liabilities \$485,088.07; net liabilities over assets, \$149,273.42. This is on a capital stock of \$672,700, of which \$322,700 is preferred stock and \$350,000 common stock. From March 1 to October 1 last a business of \$50,000 was done at the New Castle plant, on which there was a net gain of \$8,017, or 16½ per cent. The works of this concern at New Castle have been idle since October 1 of last year, and as yet there is no time set for resumption of operations. Thos. Paterson, trustee, reported as to the disposition of moneys raised from the sale of bonds, and the directory reported that on Monday the 12th inst. the affairs of the assignee were wound up and a final settlement made with him. The directory also reported that by a decision of the Supreme Court of the United States the James P.

Witherow Company had secured possession of the Hattie Eusley Furnace at Sheffield, Ala., and secured in addition a judgment against the Sheffield Furnace Company for \$21,700. The indications are that other suits of a similar nature will be as satisfactorily terminated.

A recent visit to the plant of the New Castle Steel & Tin Plate Company, New Castle, Pa., found that concern in operation to full capacity and shipping their product about as fast as made. At the present time the output amounts to about 30 tons of black sheets per day, about one-half of this amount being tinned, the balance being sold in the open market. Extensive additions to the plant are now under way, and when these have been completed the capacity for production will have been increased about one-third. As already stated in these columns, this firm is the only one in the country engaged in the manufacture of tin andterne plate that can claim to make their product from the ore up to the finished material. Their Bessemer billets are obtained from the Shenango Valley Steel Company, an identified interest, whose plant is located only a few hundred feet away, and this insures uniformity of product at all times. The main building of the New Castle Steel & Tin Plate Company is surrounded by an elevated railroad track, and on this is received all the raw material used. In one corner of the building is located a large heating furnace, fired by gas producers. In this furnace the billets are reheated and then taken to the rolls by means of "telegraph" and after being reduced to the proper dimensions are then taken to what is known as a "bosh." This is a large tank sunk in the floor and filled with water, into which the sheet bars are plunged and cooled, after which they are taken to the shears situated at the end of the "bosh," when they are sheared to the proper length. This mode of handling the billet until it is put into sheet bars requires only one minute or less, and will permit of the handling of a large amount of steel at a minimum cost. Other labor-saving devices are used in this plant. Excellent reports of the quality of the black sheets and also the tin andterne plate made by this concern have been received from customers in different parts of the country.

At the present time the Wheeling Steel & Iron Company, Wheeling, W. Va., have in operation the Wheeling Steel Works, the Belmont Blast Furnace and the sheet mill department of the Top Mill.

The Carnegie Steel Company, Limited, at Pittsburgh, have made the final payment on the City Poor Farm property, at Homestead, amounting to \$41,950.21. The city of Pittsburgh has now vacated the property and it is entirely in the possession of the purchasers.

On February 5 the Scottdale Iron & Steel Company, Limited, Scottsdale, Pa., started up their sheet mills and also their bar mill for rolling sheet bars. This firm will have two more mills ready for operation about March 10, and two new mills about April 10 or thereabouts.

Mattie Furnace, of the Girard Iron Company, Girard, Ohio, has been banked down for an indefinite period, and will remain idle until an improvement comes in trade.

The Susquehanna Iron Company, Columbia, Pa., manufacturers of all sizes of merchant bar iron, advise us that the report that their plant has been closed is without foundation. They are operating to nearly full capacity and running four of five days each week.

The Columbia Iron Company, Columbia, Pa., manufacturers of bar iron, advise us that the report that they have recently reduced wages of puddlers 25 cents a ton is untrue.

Recently the Brilliant Steel & Iron Company, Brilliant, Ohio, made a proposition to their puddlers to resume work at \$4.25 per ton, which the men refused to accept, and, as a consequence, the puddling department of this plant is still idle.

Clinton Furnace of the Clinton Iron & Steel Company, Pittsburgh, which has been idle for three or four months, resumed operations last week.

At the annual meeting of the stockholders of the Tyler Tube & Pipe Company, Washington, Pa., held there last week, the following directors were elected: Walter Woodman, Chas. S. Stone, N. E. Whitaker, J. B. R. Streater and W. P. Tyler. The directors organized by electing W. P. Tyler president and general manager; Walter Woodman, vice-president; Hon. N. E. Whitaker, treasurer; Charles S. Stone,

secretary and C. A. Bumpus, clerk. The report of operations for the year just closed showed a profit of over \$25,000 and also showed that the affairs of the concern were in a very prosperous condition. This firm have a capacity of 80 tons of pipes and tubes per day and have recently made large additions to their plant, which will considerably increase this output.

The plant of the Columbia Iron & Steel Company, at Uniontown, Pa., was sold last week to the Safe Deposit & Trust Company of Pittsburgh for \$21,000. The plant was sold subject to the mechanics' lien and first mortgage bonds, which amount to \$184,000. It is expected that after the sale has been confirmed by the courts some plan will be devised whereby the plant can be put in operation.

The difficulty between the Syracuse Tube Works and their 300 employees has been amicably adjusted. The men struck recently against a reduction in wages of 10 per cent.

The Minneapolis Rolling & Forge Company filed articles of incorporation on the 7th inst. with capital stock fixed at \$500,000 and a limit of indebtedness of \$250,000. The incorporators are E. S. Baring-Gould, A. Z. Levering, W. A. Koon, J. S. Smith, S. C. Tooker, F. E. Zonne and A. Y. Davidson, all of Minneapolis. This is the final step in the reorganization of the Minneapolis Rolling Mill Company, and it is stated that operations will commence shortly in North Minneapolis.

The oft-advertised sale of the West Superior Iron & Steel Works, at West Superior, Wis., has again been postponed, this time until March 1.

Notice has been given to the employees of the East Chicago Iron & Steel Company, at East Chicago, Ind., of another reduction in wages.

The Oregon Iron & Steel Company have blown out their blast furnace at Oswego, Ore. It is not known when operations will be resumed. The company have the contract for laying cast iron water pipe in Portland, which they are now filling.

The Milwaukee Malleable Iron Company have decided to remove to Waukesha, Wis., and will build a plant three times as large as the one recently burned at South Milwaukee.

A plan for the reorganization of Cofrode & Saylor, incorporated, and the Reading Rolling Mill Company, and covering notes and accounts between these two corporations and J. F. Bailey & Sons, has been prepared and submitted to the creditors. A summary of the liabilities shows the following: Cofrode & Saylor, total liabilities, \$676,714; Reading Rolling Mill Company, total liabilities, \$526,252, and J. F. Bailey & Sons, liabilities for notes and accounts with the above corporations, \$158,351. The plan of reorganization, which is submitted to the creditors by a committee consisting of Francis H. Saylor, Joseph H. Cofrode and J. F. Bailey, is indorsed and recommended by C. B. Houston, John H. Maltzberger and Austin Heckscher, a committee representing the creditors, and also by Joseph H. Cofrode and Wm. F. Harrity, receivers of Cofrode & Saylor, incorporated, and Joseph H. Cofrode and Ellis Ames Ballard, receivers of the Reading Rolling Mill Company.

The annual report of the Tonawanda (N. Y.) Iron & Steel Company has been made and gives the following figures: Capital stock, \$500,000, all of which has been issued except \$45,600; assets, \$533,566.84; debts, \$54,143.86.

The Utica (N. Y.) Pipe Foundry Company has re-elected the officers and directors of last year as follows: President, Henry W. Miller; vice-president, William M. White; treasurer, Nicholas E. Kernan; secretary, John L. Murray; Irvin A. Williams. The foundry is running at full capacity.

The property of the Lone Star Iron Company at Jefferson, Texas, now in the hands of a receiver, is to be sold by order of the court on the first Tuesday in May.

The Pacific Rolling Mill Company of San Francisco elected the following directors on the 7th inst.: James G. Fair, Edward Coleman, George Mattell, L. C. Bresse and A. H. Payson. The directors elected the following officers: James G. Fair, president; W. P. Sullivan, Jr., secretary; C. M. Kenney, general manager, and P. Noble, superintendent.

The plant of the Los Angeles (Cal.) Iron & Steel Company is nearing completion.

The new puddling department of the Birmingham (Ala.) Rolling Mills has been started.

It is stated that the Halcomb-Brown Iron Company will remove their rolling mill from Burlington, Iowa, to Seattle or Tacoma, Wash.

The L. P. Young Mfg. Company is the name under which Montreal, Canada, capitalists are applying for incorporation to manufacture iron and steel and steel rails. Capital, \$100,000.

The Carnegie furnace at Johnson City, Tenn., may be completed and blown in this spring.

At Hammond, Ind., the employees of the East Chicago Iron & Steel Company went out on strike against a reduction of 13½ per cent. in wages.

The two blast furnaces of the Reading Iron Company, at Reading, Pa., which have been idle since July, 1892, are undergoing repairs, and it is expected that No. 1 stack will be put in blast about March 15, while No. 2 will probably resume about a month later. No. 5 mill of the tube department of the plant of this concern resumed operations on Monday morning, the 19th inst. The mill has been idle for about two months and about 125 men are employed on both turns. It is also probable that No. 2 butt weld furnace in the old mill, employing about 30 men, will also resume work at an early date.

Keystone furnace of the Thomas Iron Company, at Chain Dam, Pa., will be put in blast at an early date.

Recently S. McClure, agent of the Stewart Iron Company, Limited, Sharon, Pa., stated to their puddlers that if they would make a proposition to work dephosphorized iron for \$4.75 per ton, this being the rate paid in the Shenango Valley, their firm would consider the advisability of giving the men a full month's work at full time, many of them being in straitened circumstances. The puddlers, however, insisted on the signing of and compliance with the Amalgamated scale. As no bars had been sold by the firm, the product so made going into stock with no prospects of early sale, the firm could not sign the scale, and consequently their puddling department continues idle.

We are officially advised that the report that the New Castle Wire Nail Company, New Castle, Pa., had made a further reduction in wages of their employees is entirely without foundation. The wire nail factory of this firm is in operation to its utmost capacity, the firm having large orders on hand.

Macfarlane & Co. have succeeded to the business formerly carried on by Macfarlane & Mordue, at 508 Columbia Building, Louisville, Ky. They will continue to represent the Woodward pig iron, Powellton foundry coke and Fire Creek coal in that district. They are also miners of Kentucky cannel coal, both for domestic purposes and gas enriching.

The contract for the material for the new iron pier to be erected at Long Beach, N. J., has been awarded to the Phoenix Iron Company of Phoenixville, Pa.

Following closely upon the death of James B. Scott of the firm of James B. Scott & Co., tin plate manufacturers, at Pittsburgh, Pa., comes the announcement that the affairs of that firm have been placed in the hands of an assignee, James Collord, a well-known iron broker of Pittsburgh, being appointed to that position. The announcement created considerable surprise in business circles in Pittsburgh, as the firm was generally regarded as a prosperous one, doing a large business. It is stated in explanation that the assignment was made pending the settlement of the personal estate of the late James B. Scott, that the firm is not in the least embarrassed in a financial way and that it is able to pay obligations, dollar for dollar. The step was merely taken, it is said, to protect the firm's creditors and the firm itself from any complications that might arise from claims of the late James B. Scott's personal creditors. Mr. Scott was a noted philanthropist and his private fortune had suffered to a large extent, it is said, through his liberality. The surviving partners, B. G. Follansbee and Wm. U. Follansbee, will continue to give their entire attention to the business as formerly, for the benefit of the assignee.

Machinery.

The Cataract Construction Company of Niagara Falls have placed the second order with the Westinghouse Electric & Manufacturing Company of Pittsburgh for a 5000 horse-power generator.

A petition has been filed in the Superior Court at Cincinnati, Ohio, to dissolve the Lodge & Davis Machine Tool Company as a corporation. The petitioners were William Lodge, Samuel Lodge and Mary E. Lodge. They said they owned more than two-fifths of the capital stock; also, that for the last three years the net earnings of the corporation have not been sufficient to pay, in good faith, an annual dividend of 6 per cent., over and above the salaries and expenses. For this reason the appointment of the master was asked to make an account and report to the court, and that the officers be required to file in court an inventory and account of the condition of the company. Charles Davis is the president of the corporation and William H. Burtner is the vice-president and secretary. They, with Mr. Davis' mother and a number of persons in their employ, hold a majority of the stock. The minority stockholders say the company have made money, yet no dividends have been declared. The concern are solvent, owing, it is said, very little in comparison with their assets. They had a capital stock of \$500,000, but at the annual meeting on the 22d of last month the directors reduced it to \$100,000. It is probable there will be a contest over the effort to dissolve.

The death of William Holmes, for some years treasurer of the A. Garrison Foundry Company of Pittsburgh, made it necessary to reorganize the board of directors of that concern, and which resulted in the following officials being chosen: J. H. Ricketson, president; O. G. Ricketson, vice-president; A. G. Barnett, treasurer; W. L. Ricketson, superintendent, and A. G. McClinck, secretary. The plant of the above concern is in operation to nearly full capacity, with prospects for the future very encouraging.

The Totten & Hogg Iron & Steel Foundry Company, Pittsburgh, Pa., have just closed a contract with the Emlyn Steel & Tin Plate Company of Summitville, Ind., with main offices in Chicago, for a complete tin plate plant. It will consist of two 24-inch hot rolling mills, three 20 inch cold rolling mills, a 600 horse-power Aetna engine, with countershaft and gear wheels, four large steel tubular boilers, 150 horse-power engine, two doubling shears, one trimming shear and additional rolls for the hot and cold rolling mills. Work on this contract will be commenced at once, and the machinery will be shipped as fast as possible. The Emlyn Steel & Tin Plate Company for some time past have been operating a tinning plant in Chicago, buying their black sheets in the open market.

At Pittsburgh the Reed Foundry Company, Limited, formed for the purpose of manufacturing stoves and doing a general foundry business, have been dissolved, said company having paid up all its indebtedness and wound up its affairs.

The Scaife Foundry & Machine Company of Pittsburgh have withdrawn the order recently issued requiring molders to make good all defective work, and the employees have returned to work.

Mackintosh, Hemphill & Company, Limited, of Pittsburgh have received a contract for the erection of a new blooming mill for the Homestead Steel Works, Homestead, Pa. The same firm have also a contract for a 38 inch blooming mill for the Duquesne Steel Works, Duquesne, Pa., which it is claimed will be one of the heaviest in the country. A pair of 40 x 60-inch reversing engines for driving this mill is included in the order.

The Missouri, Kansas & Texas Railroad Company have decided to build repair shops at Hillsboro, Texas. The company will build a round house and a machine shop, as well as a building in which to make general repairs. They have secured 80 acres of land from the town in consideration of this action.

Wainwright & Boner, proprietors of the Novelty Iron Works, at Morris, Ill., are enjoying a prosperous trade. They manufacture specialties, among which is a patent pancake griddle. They are also prepared to do jobbing foundry work.

Daniel G. French & Co., of Chicago, manufacturers of and dealers in canners' machinery and supplies, contemplate the erection of a factory at Hoopeston, Ill., an

important canning center, and the consolidation of their various manufacturing interests at that point. The Union Can Company have already located there as a convenient point for the manufacture of tin cans.

Carlson & Anderson are rebuilding their machine shop which was recently burned at Austin, Minn. In rebuilding the shop improvements in the old plant will be made and facilities will be increased.

The Menominee Iron Works, whose foundry and machine shops are at Menominee, Mich., have received so much work in the saw mill line that they are now operating two gangs of workmen, one on day turn and the other at night.

Receiver Benjamin Schrieler, on the 8th inst., at Kansas City, Kan., disposed of the extensive plant of the Keystone Iron Works Company at public sale. Lathrop Bullene, formerly secretary and treasurer of the Keystone Iron Works Company, was the purchaser. His bid was \$37,500. Mr. Bullene's only competitor in the bidding was Carnegie, Phipps & Co., Limited, of Pittsburgh, Pa., plaintiffs, represented by C. T. Hutchings. The Pennsylvania corporation bid \$37,250 merely to cover the amount of its judgment, together with the costs of litigation, but this bid was raised \$250 by Mr. Bullene, and the plant, together with all its real estate, tools, machinery and property of every description was knocked down to him.

At a recent meeting of the directors of Mankato Mfg. Company the plants of the Mankato Iron Works and the manufacturing company, at Mankato, Minn., were consolidated. W. H. Wilcox was elected superintendent, and the business of both of these plants will be run under his management, and will be carried on under the name of the Mankato Mfg. Company.

George Wilson & Son have rented the Kelly & Morgan Foundry, at Osage, Iowa, and put it in operation.

The Pond Machine Tool Company of Plainfield, N. J., for whom Manning, Maxwell & Moore, 111-113 Liberty street, New York, are the sole sales agents, have just been awarded the contract by the Ordnance Department of the United States Army for the manufacture of gun lathes and other machine tools required in the construction of steel breech loading rifle cannon of 12-inch to 16-inch caliber. The other bidders for this contract were the Niles Tool Works of Hamilton, Ohio; Bement, Miles & Co., of Philadelphia, Pa.; Robert Poole & Son Company of Baltimore, Md., and the Builders' Iron Foundry of Providence, R. I. The order consists of three lathes for turning and boring guns, one lathe for turning and finishing these guns, one machine for threading and slotting the guns and the rifling machine. This company have previously furnished to the Ordnance Department 23 large gun lathes and two rifling machines for the manufacture of breech loading rifled cannons of 8-inch to 12-inch caliber. The lathes for 16 inch guns are very much larger and heavier in every particular, as the finished weight of three of these lathes will be 460,000 pounds each. In the previous large contract awarded the Pond Machine Tool Company the time for completing the contract was four years, and they finished the contract to the satisfaction of the Ordnance Department, all the lathes having been fully tested and accepted nearly two years ahead of the time allowed them to complete the work. The lathes are to be built from designs by the Ordnance Department, and all the detailed drawings and patterns will have to be made by the Pond Machine Tool Company, and when the lathes are built they are to be erected at the Army Gun Factory at Watervliet, West Troy, N. Y. They have 18 months' time in which to complete the contract, the amount involved being over \$200,000. It is believed that these lathes will be the largest and heaviest machine tools ever built in the world.

It is stated that the Petersburg (Va.) Iron Works Company are to be reorganized, when the works will start up.

The Baltimore & Ohio Railroad Company are said to be negotiating for the purchase of 40 acres of land near Terra Alta, W. Va., on which they will erect machine shops.

A prison bill appropriating \$32,468 for a new boiler house, guard house, and other improvements at Clinton prison, has passed the Assembly of New York.

The Erie Engine Works, successors to Cleveland & Hardwick, Erie, Pa., manufacturers of engines and boilers, have re-

cently reorganized their company, this necessity being occasioned by the death of their secretary and treasurer, F. F. Cleveland. F. L. Cleveland, who was elected to fill this vacancy, has been connected with this concern for a number of years. Wm. Hardwick, the president and general manager, has been the practical member of the firm since their organization. The officers of this corporation are Wm. Hardwick, president and general manager; F. L. Cleveland, secretary and treasurer. Business is reported by them as somewhat improved over the past few months, although the depression continues to be severely felt.

At Pittsburgh the Westinghouse Electric & Mfg. Company announce that the interest upon the scrip of the company to March 1, 1894, will be paid to the holder of records of that date. The scrip books will be closed on February 24, 1894, and open on March 2, 1894.

The Lewis Foundry & Machine Company of Pittsburgh have made application for a charter of incorporation. This new concern will succeed to the business of the Lewis Foundry & Machine Company, Limited, of Pittsburgh, manufacturers of rolls and rolling mill machinery.

The Acme Machine Company, at Reading, Pa., have received a charter of incorporation, and the stockholders have organized by electing James T. Reber, president; J. G. Xander, secretary and superintendent, and Jas. C. Reber, treasurer and general manager.

Hardware.

At the annual meeting of the shareholders of the Dominion Wire Company, Montreal, P. Q., held on the 15th inst., the following directors were elected: James Cooper, F. Farman, Hon. C. C. Colby, James Williamson and F. H. Hopkins. James Cooper was elected president, F. Farman, vice-president and G. J. Simpson, secretary.

At the annual meeting of the Thomaston Knife Company, Thomaston, Conn., held recently, J. H. Wood was elected president, G. A. Stoughton, treasurer, and J. M. Warner, secretary and manager. The old Board of Directors were re-elected.

The Kelly Axe Mfg. Company expect to commence the making of axes at Alexandria, Ind., by May 15. The brick work of the main building has been nearly completed and the removal of \$100,000 worth of Machinery from Louisville, Ky., will shortly be begun.

The Lewis Tool Company of New York City have been incorporated with a capital of \$20,000, and the following directors: Mortimer G. Lewis, Edwin H. Mulford and John R. Mulford.

The plant of the Chattanooga Tool Company, Chattanooga, Tenn., which has been idle for more than three years, was purchased on the 8th inst. by a stock company, headed by George B. Durell, and will soon be put in operation with a large force of men.

The annual meeting of the stockholders of the American Screw Company, Providence, R. I., was held on the 13th inst. The old Board of Directors was re-elected.

Fred T. Meyers Mfg. Company, recently of Covington, Ky., have, since February 1, been installed in their new factory, built during the past year at Hamilton, Ohio. These buildings cover, it is said, $4\frac{1}{2}$ acres of ground, and the company allude to it as the largest in the country for the manufacture of this class of goods. There are two lines of railroads running directly into the works. The company have about finished, we are told, a large storeroom in which to accommodate finished stock. It will be remembered that this concern were burned out March 4, 1893, and since that time have been building the plant just occupied. As an inducement to come there the town, we are advised, donated the ground on which to erect the buildings. They are now in a position to execute any orders in their line. Their Eastern headquarters are at 69 Beekman street, New York, F. J. Mattison, agent.

The Jeffrey Mfg. Company, Columbus, Ohio, report a gratifying demand for their chain belting and conveying machinery. The company claim to manufacture the largest line of chains made by any manufacturer, so that they are in a position to supply all wants in their line. Catalogues describing their chain specialties, wire cable conveyors and mining machinery can be had on request.

The plant of the Western File Company, Limited, Beaver Falls, Pa., is advertised to

be sold at sheriff sale on Saturday, March 3, on a writ of *levari facias*, issued from the prothonotary's office in favor of John S. Duss and others, trustees of the Harmony Society of Economy, for the sum of \$39,768.91.

At the works of the Johnsonville (N. Y.) Axe & Tool Company, a notice of readjustment of wages has been posted. The new scale is a reduction averaging about 7 per cent.

At Racine, Wis., February 10, the entire plant of the Racine Hardware Mfg. Company was sold at public auction. When the company made an assignment the liabilities were given at something like \$400,000, and when the company made an inventory they gave the assets at about the same figure. But the assignee reported that the assets were too high and said that not over 22½ per cent. could be paid. The personal property was first sold in parcels and brought \$13,799. It was then sold as a whole, and was bid in by M. W. Sherman of Milwaukee for \$19,000. The real estate and buildings, or equity property, were then sold and also bought by Mr. Sherman for \$10,000, subject to a \$150,000 mortgage and liens amounting to about \$3000. This made the sale foot up \$29,000. The assignee has about \$50,000 in hand and together with the sale money will be able to pay 20 cents on the dollar to the creditors. Mr. Sherman, the buyer, said that he purchased the plant for other parties, but wouldn't say for whom. He admitted, however, that as soon as possible the business would be resumed with a full force of hands. It is understood that Franklin H. Head, E. B. More, F. H. Southwell and Thomas Kane & Co. of Chicago are in reality the purchasers and that the plant will be operated for Kane & Co.

Miscellaneous.

The Waddell-Entz Company, manufacturers of dynamos, motors and electrical machinery, at Bridgeport, Conn., with an office in New York City at 203 Broadway, have been put into the hands of a receiver, Montgomery Waddell, on the application of Alfred A. Whitman, treasurer, and Percival Knauth, who was the president. Knauth and Whitman hold debenture notes of the company for \$13,000 each. Mr. Knauth is also a creditor for \$13,000 money loaned, and the company owe over \$30,000 to other creditors. The assets consist of a manufacturing plant at Bridgeport and patents and rights.

Little complaint of dull times comes from the manufacturers of safes. The Mosler Safe Works of Hamilton, Ohio, have been able to run steadily to their full capacity, while the Herring-Hall-Marvin Safe Company report the safe business in a healthy and encouraging condition.

The Elliot Car Company of Gadsden, Ala., have purchased all of the property of the Car Wheel Company of Bluffton, Ala.

The Housatonic Brass Company of Wallingford, Conn., have petitioned the court for permission to change their name to that of the Housatonic Mfg. Company, as being more suitable, since their line of manufacture has materially changed, embracing other metals to a large extent.

The General Electric Company have started up their factories at Lynn, Mass., on full time.

Jos. Morrison & Co.'s Brass Works, at Toronto, Ont., have been burned. The loss, about \$30,000 on building and contents, is covered by insurance.

The stoppage of the J. M. Jones Car Mfg. Company, at West Troy, N. Y., has thrown nearly 400 men out of employment. The cause was the completion of all orders on hand and no more being received.

The management of the Walter A. Wood Mowing & Reaping Maching Company of Hoosick Falls, N. Y., say that the orders for the coming season are greatly increased over former years and there are very bright prospects for a good year's business.

It is reported that the car shops of the New York Central & Hudson River Railroad Company, at Albany, N. Y., will only operate four days a week hereafter in lieu of a reduction in wages.

At Pittsburgh the Union Switch & Signal Company last week retired and canceled the first 10 per cent. installment of their bonds. These bonds were not due until March 1, but the firm were in a position to anticipate their payment. The company issued \$300,000 of these bonds and they are to be retired in ten installments of 10 per cent. each—one series each year.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., February 20, 1894.

The situation is somewhat monotonous, although it is encouraging to find that the volume of business is gradually increasing. In saying this it is not to be supposed that there is any great activity, or that the mills are running full time, which would be far from the truth. Some mills are doing an average business, some are doing half to two-thirds, some are doing absolutely nothing, so that, taking it all around, there is not more than 50 % to 60 % of the normal output. Considering that this is 15 % to 20 % better than during the latter portion of 1893, it is clear that the tendency is toward improvement. The same estimate would probably apply to the foundry trade, as well as to other branches, so that while there is improvement, and the current is in the right direction, the situation is still very far from being what it would be in ordinary times. Prices are extremely low, probably a shade lower than last week, and, from present appearances, are likely to continue at low figures indefinitely; but, as we said before, there is encouragement in the fact of an increasing demand, with pretty satisfactory evidences that this will become more pronounced as the season advances.

Pig Iron.—The Pig Iron market is somewhat unsettled by reports that contracts for Ore have been made at unprecedentedly low prices. The heavy shipments of Steel from the West show that furnaces in this locality have lost an enormous amount of trade, and if Lake Ores are to be as low as rumor intimates, there is very little chance of the trade being recovered by furnaces in the East. In the course of time things may change around again, but in the meanwhile the outlook is very discouraging to the owners of furnaces in Eastern Pennsylvania. The foundry trade is about all they have to depend upon, and as that is to some extent supplied by Southern and Central Pennsylvania furnaces, the pickings look very small compared with what they were a few years ago. As regards the immediate condition of the market, there is little to be said except that it is dull and prices barely steady. Stocks are not unduly large, but sellers seem to be willing to meet all demands at current quotations, which for Philadelphia and equivalent points are about as follows:

No. 1 Foundry	\$13.00 @ \$13.50
No. 2 Foundry	12.50 @ 13.00
Standard Gray Forge	11.25 @ 11.50
Ordinary Gray Forge	10.75 @ 11.00

Steel Billets.—The dullness has at last developed lower prices. A few sales were made at \$18 25 @ \$18.30, but within the past few days offers to accept \$18, delivered, brought no response, and the feeling to-day is distinctly lower. Consumers bought pretty liberally when prices were down to \$17.50 and thereabouts, and from present appearances they are likely enough to get in again at something near to the same figures, although for the present they are disposed to hold off until it is seen what effect low priced Ores are going to have. Asking prices to day are \$18 @ \$18.25, but only small lots are bid for; for the present 100 to 200 tons at a time is about all that buyers will take.

Finished Material.—The demand keeps up very fairly, and while there are no specially large orders, mills are doing more than for several months

past. Unfortunately, prices are lower than ever and from present appearances are not likely to improve until the volume of business is vastly greater than it is to-day. The outlook in this respect is somewhat favorable, as the amount of old work taken up is quite considerable, besides which there are several important contracts under negotiation, so that, taking everything into account, prospects are not as discouraging as the demoralization in prices would seem to indicate. Locally there is some inquiry for Structural Material, also for the material for a new vessel to be built at the Cramp shipyards, and although the total of all the inquiries is not unusual, it is at all events sufficient to warrant the belief that the tendency will be toward increased employment rather than to any falling off. Prices, as already mentioned, average lower than ever, but it is almost impossible to quote with any degree of accuracy, as everything depends on the size and character of order. For small lots prices are about as follows, but on large lots concessions of 10¢ or 15¢ per 100 lb are not unusual:

Grooved Skelp, delivered.....	1.30¢	@ 1.35¢
Best Refined Bars.....	1.35¢	@ 1.40¢
At interior points.....	1.20¢	@ 1.25¢
Tank Steel.....	1.35¢	@ 1.40¢
Heavy Plates.....	1.40¢	@ 1.50¢
Shell.....	1.50¢	@ 1.60¢
Flange.....	1.70¢	@ 1.90¢
Angles.....	1.50¢	@ 1.60¢
Beams and Channels.....	1.60¢	@ 1.80¢

Old Material.—There is rather more inquiry, and sales can be made with less difficulty than for some time past, but holders are inclined to look for better prices, and are therefore not forcing the market. Small lots change hands at about the following quotations:

Heavy Melting Steel.....	\$10.00	@ \$11.00
Light Melting Steel.....	8.00	@ 9.00
No. 1 Wrought Scrap.....	10.50	@ 11.50
Machinery Cast.....	9.50	@ 10.50
Wrought Turnings.....	9.00	@ 10.00
Cast Borings.....	6.00	@ 6.50
Old Iron Rails.....	12.50	@ 13.00

Chicago.

(By Telegraph.)

Office of *The Iron Age*, 59 Dearborn street, Chicago, February 21, 1894.

The indications at present again point in the direction of lower prices. The increased volume of business realized within the past two weeks keeps up pretty well and further gains have been established in some branches, but prices do not harden and there are notable instances of decided weakness.

Pig Iron.—More than an average week's business has occurred in local Coke Iron and sellers talk very hopefully of prospects for more trade. The bulk of transactions, however, continues to be in small lots, as the disposition to contract ahead is not general. Here and there a consumer feels warranted in anticipating his requirements, but the majority cannot be persuaded to purchase more than what is absolutely needed. Among the sales made the past few days were some which have cut still further into the Southern Iron trade. Foundrymen are changing their proportions of local and Southern Iron and now making the bulk of their mixture of the former. The Iroquois Furnace has blown in and is doing well. The aggregate of small sales of Southern Iron was fair during the week, but, so far as reported, no large contracts have been made. Lake Superior Charcoal continues quiet, but more is being heard of offers of hypothecated stocks, on which \$14 appears to be about the

price named. Charcoal makers who are selling their own Iron refuse to meet these figures and quotations are therefore unchanged on such brands. Quotations are given as follows, for cash:

Lake Superior Charcoal.....	\$15.30	@ \$15.50
Local Coke Foundry, No. 1....	12.00	@ 12.50
Local Coke Foundry, No. 2....	11.50	@ 12.00
Local Coke Foundry, No. 3....	11.00	@ 11.50
Local Scotch.....	13.00	@ 13.50
Ohio Strong Softeners No. 1....	15.00	@ 15.50
Southern Silvery, No. 1.....	13.00	@ 13.75
Southern Silvery, No. 2.....	13.00	@ 13.25
Southern Coke, No. 2.....	11.50	@ 11.65
Southern Coke, No. 3.....	11.00	@ 11.50
Southern, No. 1, Soft.....	11.50	@ 11.65
Southern, No. 2, Soft.....	11.00	@ 11.50
Tennessee Charcoal, No. 1....	16.00	@ 16.50
Tennessee Charcoal, No. 2....	15.00	@ 15.00
Southern Gray Forge.....	10.80	@ 10.85
Alabama Car Wheel.....	18.00	@ 18.50
Jackson County Silvery.....	18.00	@ 18.50
Other Ohio Silvery.....	15.00	@ 15.50

Bars.—The inquiry has been somewhat greater, but thus far has not led to much business either in Bar Iron or Soft Steel Bars. The low quotations now being made on Common Bar Iron seem to have a deterrent effect on purchasers, who are holding off to see whether bottom will be reached. Efforts are being made by some of the manufacturers to stop the decline, but others seem inclined to continue to depress sales. The Valley mills are now generally quoting 1.10¢ at mill, or 1.23¢, Chicago. Nearby mills are quoting 1.15¢ @ 1.20¢, but these rates have been somewhat shaded. Soft Steel Bars are quoted at 1.35¢ @ 1.40¢, Chicago, for best brands, and some sales are reported to good buyers at the higher figure. Jobbers report a spasmodic demand for small lots from stock, with quotations continued at 1.40¢ @ 1.50¢ for Bar Iron, and 1.50¢ @ 1.60¢ for Soft Steel.

Structural Material.—A great deal of figuring is being done on work in this line and prospects are improving for business as soon as the building season opens. The buildings now contemplated are mainly of a moderate character and include very few large structures. Quotations at present are as follows for Chicago delivery: Beams and Channels, 1.40¢ @ 1.45¢; Tees, 1.75¢ @ 1.80¢; Angles, 1.35¢ @ 1.45¢; Universal Plates, 1.40¢ @ 1.50¢. Small lots from stock are sold at an advance of 10¢ @ 15¢ per 100 above these prices.

Plates.—Business in this line continues to gradually improve, and February promises to show a larger volume of business than January, which had shown a gain on December. This improvement, though slow, is welcome, and manufacturers' agents and dealers are both participating in its benefits. Mill shipments, Chicago delivery, are quoted as follows: Tank Steel, 1.40¢ @ 1.50¢; Flange Steel, 1.80¢ @ 1.90¢; Fire Box, 2¢ @ 5¢. Store prices are as follows: Iron or Steel Sheets, Nos. 10 to 14, 2¢ @ 2.10¢; Tank Steel, 1.90¢ @ 2¢; Flange Steel, 2.20¢ @ 2.45¢; Boiler Tubes, 70 and 5 % off.

Sheets.—The situation in Black Sheets has changed materially from that reported last week. Mills are again anxious for work and prices are weaker. Quotations on mill shipments of No. 27 Common are 2.45¢ @ 2.50¢, Chicago, with small lots from stock selling at 2.75¢. Galvanized Iron is also weaker, in sympathy with Black Sheets, notwithstanding the advance in Spelter, which should have a counterbalancing effect. Quotations on mill shipments Juniata are made at 75 and 10 and 2½ % off. Sheet Copper is unchanged at 30 % @ 35 % off for Light Sheets and

up to 40 % off for Heavy Sheets, according to quantity.

Merchant Steel.—Manufacturers' agents are in receipt of some inquiry, but actual sales have not been so large. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery, Tire and Open Hearth Spring Steel, 1.85¢ @ 1.95¢; Ordinary Bessemer Machinery, 1.55¢ @ 1.60¢; Bessemer Tire, 1.40¢; Ordinary Tool Steel, 6¢ @ 7¢; Specials, 12¢ and upward.

Billets and Rods.—The strength of the local Billet market has not yet been exhausted. Inquiries continue heavy and indicate that consumers are willing to pay present prices for delivery beyond July 1, but makers are disinclined to figure so far into the future. They continue to quote \$18.50 firm. Makers have declined to quote on Wire Rods for deliveries beyond July 1, having business offered on which they could sell freely for August and September. The Washburn & Moen Company's mill at Waukegan is running double turn up to its full capacity, with its entire output disposed of for a considerable time ahead. Quotations on Wire Rods are continued at \$25.

Rails and Track Supplies.—Inquiries for Steel Rails are increasing and yet actual business continues light. But the placing of contracts can hardly be delayed much longer, as a certain tonnage must be bought by railroads for actual repairs. A considerable number of electric railroad schemes are now coming up and a good tonnage seems assured in that direction also. Prices of standard Rails are unchanged at \$25 @ \$27, according to quantity. Good contracts are in the market for Track Fastenings, and quotations are continued at 1.40¢ on Splice Bars, 2.45¢ @ 2.50¢ on Track Bolts with Hexagon Nuts, and 1.80¢ @ 1.85¢ on Spikes.

Old Rails and Car Wheels.—Transactions in Old Iron Rails have latterly been completely confined to trades for new material. Sales made for cash would hardly realize \$11. Quotations are continued at \$9.50 @ \$10 for long lengths of Old Steel Rails, and \$6.75 for short pieces. Old Car Wheels are unchanged at \$10.50 @ \$11.

Scrap.—A little improvement in demand is reported in Wrought Scrap, but Cast and Steel are very quiet. Among the transactions reported were 100 tons No. 1 Forge at \$9.50, 60 days. Sales of larger quantities were made at \$8.50 @ \$9. A sale of 100 tons No. 1 mill was made at \$7. Quotations in a regular way per net ton are as follows: No. 1 Forge, \$8.50 @ \$9.50; No. 1 Mill, \$6.50 @ \$7; Pipes and Flues, \$6; Heavy Cast, \$8; Stove Plate, \$5.50 @ \$6; Fish Plates, \$10; Cast Borings, \$3.50; Wrought Turnings, \$5; Mixed Steel, nominally \$5.25.

Metals.—Lake Copper is a little weaker, and carload lots are now quoted 10½¢. Casting Copper is quotable at 9.60¢, with a little more retail trade, but few inquiries for carloads. Spelter is firm at 3 62½¢ @ 3.65¢, while Pig Lead is weak at 3.05¢ @ 3.07½¢.

Backman, Forsyth & Co., 521 The Rookery, Chicago, have been appointed sales agents for Chicago and vicinity for the Eagle Iron Company of Spring Valley, Wis. This new furnace, which has been completed for some time, will be blown in this week and will make Charcoal Pig Iron. They have also been appointed sales agents

for McKeefrey & Co. of Leetonia, Ohio, producers of Seneca Pig Iron and Foundry Coke.

Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fifth and Main Sts.,
CINCINNATI, February 21, 1894.

There has been a light volume of trade in Pig Iron during the week ending to-day, not because of any scarcity of stock, but because there were no buyers of large lots, either for spot or forward delivery. There was small increase in the demand from the smaller foundries for current consumption, which was freely supplied at previous quotations and at the close there are more free sellers of all kinds of Southern Iron and it is believed that buyers could obtain concession of 25¢ per ton, although there have been no transactions on which to base such a quotation. A large rolling mill has been started up in Birmingham, Ala., and it is pretty certain that low prices were made for the new material to be used, a part of which is Steel Billets from Pittsburgh. The primary object was to get the mill into operation, and if low rates were made on Pig Iron it was only to a moderate extent and seems not to have affected prices in the district at large. There is no increase in the demand for Charcoal Iron, but the whole tone of the market is easy, especially for the lower grades. Quotations are merely nominal, as follows:

Foundry.

Southern Coke, No. 1.....	\$11.25 @ \$11.50
Southern Coke, No. 2.....	10.25 @ 10.50
Southern Coke, No. 3.....	9.75 @ 10.00
Ohio Soft Stone Coal, No. 1....	14.50 @ 15.50
Ohio Soft Stone Coal, No. 2....	14.25 @ 14.50
Lake Superior Coke, No. 1.....	13.00 @ 13.50
Lake Superior Coke, No. 2....	12.00 @ 12.25
Hanging Rock Charcoal, No. 1..	17.00 @ 17.50
Hanging Rock Charcoal, No. 2..	16.50 @ 17.00
Tennessee Charcoal, No. 1.....	13.50 @ 14.00
Tennessee Charcoal, No. 2.....	12.50 @ 13.00

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	16.75 @ 17.75
Lake Superior Car Wheel and Malleable.....	16.50 @ 17.00

Forge.

Gray Forge.....	9.25 @ 9.50
Mottled Coke.....	9.25 @ 9.50

St. Louis.

(By Telegraph.)

Office of *The Iron Age*,
Bank of Commerce Building,
ST. LOUIS, February 21, 1894.

Pig Iron.—There is no change to note in this department. Prices are weaker with each succeeding sale, and sales are now largely confined to carload orders. A local stove works bought 2000 tons of No. 1 and No. 2 Foundry, and a sale of 500 tons of No. 2 Foundry is also reported. There is no snap to the market and it takes lots of hard work to sell even carloads. We quote as follows for cash, f.o.b. cars St. Louis:

Southern Coke, No. 1 Foundry.....	\$12.00 @ \$12.25
Southern Coke, No. 2 Foundry.....	11.00 @ 11.25
Southern Coke, No. 3 Foundry.....	10.50 @ 10.75
Southern Gray Forge.....	10.00 @ 11.25
Southern Car Wheel.....	17.00 @ 18.00
Lake Superior Car Wheel.....	16.50 @ 17.00
Ohio Softeners.....	1.75 @ 16.25

Bar Iron.—The hand to mouth demand which has been the feature of this department for some weeks past continues and prices are easier. Mills quote 1.20¢, and it is intimated that this price is shaded. Jobbers ask 1.50¢ for small lots from store.

Barb Wire.—The demand, which has kept improving since the beginning of the month, has now reached large proportions and mills are nearly all running full and are pushed to fill their orders promptly. The scarcity of Rods in connection with the opening of the spring demand for Wire has firmed the market up quite materially and \$2.05 @ \$2.10 is now quoted for Painted. Galvanized, \$2.45 @ \$2.50. Carload lots, 5¢ per hundred-weight less.

Wire Nails.—There seems to be a better demand for Wire Nails, but prices do not get any better. Jobbers quote \$1.30 @ \$1.35, while mills are filling orders on the basis of \$1.20 for carload quantities. The improved tone in the Barb Wire market may yet help Wire Nails.

Rails and Track Supplies.—There is some inquiry for Light Rails, but in standard sections business is extremely quiet. Railroads are economizing in every direction, and specifications only call for what is absolutely necessary. We quote as follows: Splice Bars, 1.40¢ @ 1.45¢; Spikes, 1.75¢ @ 1.80¢; Bolts, Square Nuts, 2.20¢; with Hexagon Nuts, 2.30¢; Links and Pins, 1.75¢ @ 1.80¢; Old Iron Rails are nominally quoted at \$12.50 @ \$13, but nothing doing. Steel Rails are unchanged at \$26 @ \$27.

Pig Lead.—There appears to be no hope for improvement for this metal. At 3¢ sellers appear to have made a determined stand not to accept less, but as the same stand was taken at 3½¢ and 3¼¢, and failed to do any good, it is perhaps likely to be repeated at 3¢. There are no buyers for Lead at today's prices and a lower market is among the probabilities.

Spelter.—The movement in Spelter reached its highest point at 3.65¢, and the market has now eased off to 3.60¢, but there is nothing doing at this price. As intimated in our last report, the movement is thought to be purely speculative, and unless there is some improvement in the demand it is not thought the present prices can be maintained.

The Missouri Metal Company, St. Louis, Mo., have secured offices in the Security Building and are ready for business. They will make a specialty of Spelter and Pig Lead. In a circular letter which they are sending out to the trade they state that "owing to their friendly relations with the Western smelters and their favorable location, they are in a position to furnish the trade with almost any brand of Spelter or Pig Lead that may be required." The officers of the company are Alex. Euston, president; W. P. Coleman, vice-president; Edward M. Flesh, secretary.

New York.

Office of *The Iron Age*, 96-102 Reade street,
NEW YORK, February 21, 1894.

Pig Iron.—Some additional lots of cheap Southern Iron have been sold at prices in keeping with the low figures referred to last week. Otherwise none but routine business has passed, and the demand, as generally reported, continues tame. Prices have undergone no decided change, but the leaning is, if anything, still in buyers' favor, since livelier interest is shown by sellers than by buyers. Particularly is this the case with low Foundry and Mill grades. We quote standard brands \$13 @ \$13.50 for No. 1; \$12.50 @ \$13 for No. 2;

\$11.75 @ \$12.50 for Gray Forge, at tidewater. Southern Iron, same delivery, \$13 @ \$13.50 for No. 1; \$11.75 @ \$12.50 for No. 2; \$11.50 @ \$12 for No. 3; \$11.50 @ \$11.75 for No. 2 Soft, and \$12 @ \$12.50 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$10.75 @ \$11.25.

Ferromanganese and Spiegeleisen. No business was reported, and little has been under negotiation the past week. We quote domestic Ferromanganese \$52 @ \$52.50, tidewater, and foreign Spiegeleisen nominally \$21 @ \$22 for 10%, and \$24.50 @ \$25 for 20%.

Billets and Rods.—No new business of importance was reported in this quarter, but there is more or less negotiation, with promise of something developing ere long. We quote \$18.50 @ \$18.75, tidewater, for domestic, and \$27 @ \$27.50 for foreign Billets. Domestic Wire Rods quoted at \$26.75 @ \$27, tidewater, while foreign are nominally \$39 @ \$40.

Steel Rails.—There have been no new developments. Few sales have been made in this vicinity, and they were exclusively of comparatively small lots. The official price remains \$24 at mill, or \$24.80 at tidewater, for standard sections.

Track Material.—We quote as follows for small lots: Spikes, 1.70¢ @ 1.90¢; Fish Plates, 1.35¢ @ 1.40¢; Track Bolts, Square Nuts, 2.10¢ @ 2.40¢, and Hexagon Nuts, 2.30¢ @ 2.50¢, delivered.

Old Material.—A little more has been doing, chiefly in lots of a few hundred tons, and the demand is a shade better also. The movement, however, is not extensive enough to have any decided effect upon prices. Steel T Rails are offered at \$10 and Streets at \$9.50, f.o.b. Jersey City. Iron T's went at \$12 @ \$12.50, and No. 1 Wrought Scrap Iron at about \$10, delivered to lighter here.

Metal Market.

Pig Tin.—Prices have ruled a fraction lower on Straits Tin for prompt and near future delivery, or, say, on the basis of 19.40¢ @ 19.45¢, net cash, for 5 ton lots. The concession has failed to excite livelier buying on the part of dealers or consumers and proved quite as ineffective as an inducement to speculative operations. Some exceedingly low selling prices on distant future deliveries have been repeated with like result. The popular explanation of the unusual inactivity is the effect of the uncertainties of tariff legislation, particularly in view of the large holdings in European markets, the considerable amount of stock in bonded warehouses here and late heavy shipments from the primary sources of supply. During the first half of February no less than 1875 tons were sent out from the Straits as against 1125 during the corresponding period last year. In connection with heavy January shipments from the Straits and the fact that the shipments thence last year were nearly 10,000 tons in excess of the movement during the year 1891, this would seem to be a reasonable explanation of the dull condition of the market and general hesitancy and indecision prevalent at the present time.

Copper.—There have been some signs of more active business in this line. Few facts come to the surface since the leading operators cling to the idea

that the "mysterious" is the best policy, but rumor has it that not only the leading Lake Superior companies but some producers of the lower grade metal have taken quite liberal orders and that the prices were lower than any that operators on change have ventured to offer at. The facts in this connection, however, remain hidden. Hence all that can be said is that the rumor has to go for what it is worth. Pending developments, the popular quotations are 9½¢ @ 9¼¢ for Lake Superior Ingot, 9½¢ for Electrolytic and 9¼¢ @ 9½¢ for ordinary casting brands.

Pig Lead.—The softness that came prominently to the front last week has become more pronounced since and the market at this writing is, to the best of it, looking rather depressed. There are sellers at 3.25¢, and few if any buyers. There are requests for bids of 3.20¢ and the response is almost inaudible. There were a few offers of 3.15¢ for single car load lots, prompt or near future delivery.

Spelter.—Irregularity has been the prominent feature. Western advices go to show that the effect of late speculative deals there has worn off; that the proposed reduction in output has been well discounted and that there are yet a few more tons unsold. In the face of extremely high prices quoted from St. Louis it has been no difficult matter to purchase good Western brands at 3.90¢ @ 3.95¢, delivered here. In speculative quarters there were offers of carload lots at a shade less for delivery this month and next.

Antimony.—About the usual business has been done. Prices remain steady at 9¼¢ @ 9½¢ for Hallett's and 10¼¢ @ 10½¢ for Cookson's, on the spot.

Nickel.—Late sales were at 45¢. Most sellers ask 2½¢ @ 5¢ above that price.

Tin Plates.—Business has not improved. Spot goods are being taken in a very moderate way only, and futures are much slower than usual at this season of the year. For spot goods the following prices are quoted: Coke Tins—Penlan grade, IC, 14 x 20, scarce; J. B. grade, do., \$5.32½ @ \$5.35; Bessemer full weight, \$5.20 @ \$5.25; light weights, \$4.80 @ \$4.85 for 100 lb, \$4.77½ @ \$4.80 for 95 lb, \$4.60 for 90 lb. Siemens Steel scarce. Stampings—Bessemer Steel, Coke finish, IC basis, \$5.45; Siemens Steel, IC basis, \$5.55 @ \$5.60; IX basis, \$6.60. Charcoals—Melyn grade, IC, \$6.35; Crosses, \$7.87½; Allaway grade, IC, \$5.50; Crosses, \$6.65; Grange grade, IC, \$5.60; Crosses, \$6.75. Charcoal Terns—Worcester, 14 x 20, scarce; do., 20 x 28, \$11.35; M. F., 14 x 20, \$7.25; do., 20 x 28, \$14.50; Dean grade, 14 x 20, \$5.35; do., 20 x 28, \$10.50 @ \$10.60; D. R. D. grade, 14 x 20, \$5.15; do., 20 x 28, \$9.90 @ \$10; Alyn, 14 x 20, \$5.35; do., 20 x 28, \$10.50; Wasters—S. T. P. grade, 14 x 20, \$4.75; do., 20 x 28, \$9; Abercarne grade, 14 x 20, \$4.60; do., 20 x 28, scarce.

Regarding rumored movements recently, few particulars have been divulged thus far. It is uncertain whether anything more than routine sales have been made of Lake Superior Ingot, but that bids of 9½¢ for quite a considerable quantity have been turned down is understood to be a fact. Fairly large sales have been made of Wire Bars and other Electrolytic Copper, however, chiefly at prices on the basis of 9½¢ for the former, and some good orders, it was

learned, have been placed recently for casting stock. The purchases involved deliveries from March to May inclusive.

The monthly production of Copper in the United States has been as follows, the first column giving the aggregate returns from the reporting mines, which include the principal Lake, Montana and Arizona producers; the second being the metal from pyrites and from a number of smaller outside sources, being estimated:

	American Product. Reporting mines. Gross tons.	Outside sources. Gross tons.	Total. Gross tons.
Second half			
1892.....	59,239	6,257	65,526
First half			
1893.....	62,470	6,478	68,938
Second half			
1893.....	67,290	6,257	73,542
Total year			
1893.....	129,760	12,730	142,490
1894.....			
January....	10,832	1,340	12,172

The product of the foreign reporting mines and the United States exports were as follows:

	Foreign reporting mines. Gross tons.	United States exports. Gross tons.
Second half 1892.....	39,655	17,980
First half 1893.....	41,048	20,361
Second half 1893.....	40,647	60,031
Total 1893.....	81,495	80,392
1894.....		
January.....	6,145	7,717

Pittsburgh.

(By Mail.)

Office of *The Iron Age*, Hamilton Building, }
PITTSBURGH, February 20, 1894. }

The week has been a quiet one in the Iron trade, and without special feature. The activity prevailing at the first of the month, particularly in Steel, Wire and Nails, has not been maintained, and prices on those staples are easier. In Finished Material there is a fair tonnage, with prices as low as ever, and in some cases the lowest prices touched have been made only recently. With the tonnage not large enough to give the mills half enough work, and with every mill anxious to reach the lowest possible cost by keeping fully employed, it is comparatively easy to understand why prices do not improve, but seek a lower level. When the question comes up as to when we will have a permanent improvement in trade, the answer invariably is, not until tariff legislation has ceased and we have some fixed basis to work on. It is generally conceded that this is the true solution of the vexed problem.

Pig Iron.—The announcement made last week that the Norrie Mine in the Gogebic range had sold standard Bessemer Ore for this year at \$2.75, Cleveland, was hardly credited at first, but has been fully verified. These early sales are regarded as of the utmost importance, fixing, as they do to large extent, the price on which other and larger contracts will be based, the phosphorus determining whether the price shall be higher or lower. During the week the subject of \$2.75 Ore has been carefully studied by the trade, and cost sheets innumerable have been made up, the deduction being that the cost of making Iron will be very much lower than last year. The low prices ruling for Coke are also referred to as an advantage in this direction. The Pig Iron market was extremely quiet during

the week, no transactions of importance coming to the surface. Clinton, in this district, has gone in, and Allegheny County is now making more Iron than at any time since last summer. We quote as follows:

Neutral Gray Forge.....	\$9.65 @ \$10.00 cash.
All-Ore Mill.....	9.75 @ 10.00 "
No. 1 Foundry.....	11.50 @ 11.75, "
No. 2 Foundry.....	10.75 @ 11.00 "
Bessemer.....	10.65 @ 10.75 "

We note a sale of 500 tons of Bessemer for March delivery, at \$10.65, Pittsburgh; also 500 tons Gray Forge for March, at \$9.65, Pittsburgh.

Billets.—The week has been quiet, makers still holding to \$16 at mill, with a limited tonnage being placed. During the recent period of activity considerable Steel was placed, and most of the mills are well fixed for the next two or three months. The large buyers are also covered for a month or two, and as a consequence business is expected to be light until some of the larger consumers again come in the market, when another buying movement is expected, such as occurred about the first of the present month. Although the market is somewhat bare of inquiries just now, no material decline in the price of Steel is looked for, as the mills generally have enough orders to keep them going for a time, and consequently need not push the market for business.

Ferromanganese.—We continue to quote \$52, delivered, for 80 % domestic.

Plates.—Nothing of interest developed during the week. It is claimed that the market is in position to stand better prices for Plates and that improved prices would soon come if it were not for the pernicious activity shown in certain quarters, by which prices are kept at the lowest possible notch. An Ohio bridge concern will let contracts for about 1000 tons of Plates this week and all the prominent Western mills will bid on the work. We quote as follows: Tank Steel, 1.25¢ @ 1.30¢; Shell, 1.40¢ @ 1.50¢; Flange, 1.50¢ @ 1.60¢; Ordinary Fire Box, 1.75¢; Railroad Fire Box, 2¢.

Structural Material.—While considerable tonnage is in sight, it develops into actual business very slowly. Prices are without material change and we continue former quotations as follows: Beams and Channels up to 15 inches, 1.25¢ @ 1.35¢, according to order; Angles and Universal Plates, 1.25¢ @ 1.30¢; Tees, 1.40¢ @ 1.50¢.

Bars.—While some makers report an improved market, others sections say that trade is no better than it has been for some months. On the whole, however, it can be stated that the demand is showing signs of improvement. A good deal of car work has been given out and several large inquiries from car makers are reported. As stated last week, the tone of the market is better, and it is believed that prices are about as low as they can well go. Common Bar Iron at 1.05¢, at mill, does not mean a profit, but probably a loss. We quote Soft Steel Bars at 1.20¢ @ 1.30¢; Common Iron Bars we quote at 1.15¢ @ 1.20¢, at mill, half extras. The lower quotation continues to be shaded for desirable orders.

Muck Bars.—We note a sale of 1000 tons of Muck Bars of high grade at \$20, delivered at buyer's mill. We quote at \$19.50 @ \$20, according to quality, delivered at buyer's mill.

Merchant Steel.—Makers report an improved demand from jobbers, but

the trade in general is unsatisfactory. Complaint is made of the slowness of collections, many accounts of last year being unsettled. We quote: Bessemer Machinery, 1.40¢ @ 1.45¢; Open Hearth Machinery, 1.60¢ @ 1.70¢; Open Hearth Spring, 1.70¢ @ 1.75¢; Toe Calk, 2¢; Machine Straightened Tire, 1.60¢ @ 1.65¢; Sleigh Shoe, 1.65¢; Cold Rolled Shafting, 2.65¢ base.

Skelp Iron and Steel.—We quote as follows: Grooved Steel Skelp, 1.05¢ @ 1.15¢; Sheared Steel Skelp, 1.15¢ @ 1.25¢; Grooved Iron Skelp, 1.25¢ @ 1.30¢; Sheared Iron Skelp, 1.35¢ @ 1.40¢.

Pipes and Tubes.—There is a better demand for the large sizes, particularly for Line Pipe, while the Merchant sizes have also recently shown some improvement. Prices continue as low as ever, depending altogether on the nature of the order.

Barb Wire.—The demand is not as active as it was, having fallen off considerably within the last week or so. The established prices of \$2.15 for Four-Point Galvanized and \$1.75 for Painted, in carload lots, are said to be maintained. We quote Plain Wire at \$1.35 in carload lots.

Wire Nails.—The demand, as compared with two weeks ago, shows considerable falling off, but in view of the heavy buying at the first of the month, this was expected. The mills generally are well supplied with business for the next two or three months. We quote Wire Nails at \$1.05 @ \$1.10 in carload lots. The Cut Nail market is fairly active and is represented by the quotation of \$1 @ \$1.05 in carload lots at mill for the usual averages.

Connellsville Coke.—For the week ending Saturday, February 10, there were 9265 active ovens and 8277 idle in the Connellsville region, the estimated production for the week being 91,685 tons. Compared with the production of the previous week, this was a net increase of 8041 tons and a net gain in active ovens of 291. Prices of Furnace Coke continue very irregular, the prevailing rate being 90¢, while it is claimed that certain operators have offered to sell as low as 80¢. Some concerns in the region are refusing to meet these low figures. Foundry Coke is held at \$1 to dealers and \$1.15 to consumers, the latter quotation being shaded about 10¢ per ton for desirable trade.

In the courts at Pittsburgh this week a bill in equity was filed by James Todd and Frank L. Slocum against C. Y. Wheeler and the Sterling Steel Company. The suit involves a considerable sum of money. The plaintiffs state that in 1889 they invented a new method of manufacturing the so called aluminum chromium steel. An agreement was made with the defendants whereby the latter were to have the right to manufacture this steel for tool steel upon paying a royalty of 1 cent per pound so long as the secret of manufacture should not be discovered and a similar steel made and sold on the market by others. The defendants paid the royalty up to April, 1893, but, it is charged, have paid none since, and a large amount is due. They have also been using the process in making projectiles for cannon for the United States Government, and from this alone there is due royalties between \$20,000 and \$30,000. In addition to this the defend-

ants have organized themselves as the Wheeler-Sterling Armor Piercing Projectile Company, and are using the process in making projectiles, but have never accounted to the plaintiffs for the royalties. The court is asked to compel the defendants to give an accounting and pay the royalties due.

At Pittsburgh last week the puddlers formerly employed by the Keystone Rolling Mill Company, Limited, notified the firm that they would return to work on Monday, the 19th inst., the price fixed for puddling being \$4 per ton. Later the men repudiated this agreement and declined to return to work unless the firm would agree to pay \$4.75 for puddling, the rate fixed by the Almagamated Association scale. The firm refused to pay this price and have decided to operate their plant with non-union men. The finishers are at work, and it is believed that within a few days enough puddlers will be secured to operate the puddling department. The agreement entered into by the firm and their employees, but which was violated by the latter, is as follows: "We, the Keystone Rolling Mill Company, Limited, agree to pay \$4 per gross ton for puddling, the muck roller to receive one-eighth of the price of puddling. The price of scrapping is \$1.60 per gross ton. The price for heating and rolling on the plate mill is 50¢ per gross ton and 20% reduction on last year's price for all other roll hands. This is to continue until April 1, 1894, when if either the employees or company should ask for any change in the above they shall give 30 days' notice of such change. It is also agreed that should the old hands not be given their old positions this agreement shall be void."

R. W. Carroll, Pittsburgh representative of the American Tube & Iron Company, has arrived home from a two months' trip through old Mexico and on the California coast. During his absence Mr. Carroll combined business with pleasure, and reports having been successful in the pursuit of both.

Financial.

The financial and business situation exhibits this week no noteworthy changes in any direction. Wall street is still in a waiting mood, and transactions in the stock and money markets are of much the same character as that recorded last week. The outside public evinces little or no interest in speculative or investment business in securities, and dealings, which have generally been light, have been confined almost entirely to the "professional" element. The volume of general trade shows no appreciable gain. This circumstance is decidedly disappointing to the many who believed that a material, if slow, improvement had at last set in. As a matter of fact, the latest reports from the various trade centers show in most cases an actual falling off in the volume of business from that of a week or two ago. The slow action of the Senate Committee in regard to the tariff bill, now in their hands, is held responsible for this check. It is asserted that many large orders for goods are being held back pending the passage or rejection of the bill. Until that question is disposed of there will be a continued disposition to buy no more stock than is absolutely required for immediate wants. The decrease referred to is reflected in the reports of Clearing House payments, which, for the whole coun-

try, were about 38% smaller last week than for the same week of last year, the decrease of the previous week being only 33.4%.

The receipts of railroads for the first week of February are computed by the *Financial Chronicle* at \$5,520,886, a decrease of 10.18% as compared with the corresponding week of last year, itself an unfavorable week. Eastbound shipments from Chicago show, moreover, a loss of 29%. The price of wheat went lower than ever, being quoted at the close of last week at the lowest figure on record. May wheat fell in New York to 62¢ and in Chicago to 57½¢. On Tuesday, however, a sharp rally of 2½¢ a bushel gave a better tone to the market, although exports from both coasts continue largely below the average for the season.

The Treasury statement reflects the benefit attending the recent sale of bonds, the "free gold" in hand being now over \$105,500,000. It is not believed at the Treasury Department that any further issue of bonds will be necessary to maintain the Treasury balance, whether the Bland bill for coinage of the seigniorage be passed or not. The receipts from customs have been improving of late and the deficit for February does not promise to exceed \$2,000,000. Thus it is hoped that revenue losses can be endured until the new revenue laws take effect.

The weekly statement of the New York banks issued last Saturday exhibits the full effect of the bond purchases, which have taken during the past two weeks \$42,539,000 of their reserve, in addition to \$7,000,000 currency received from the interior, making apparently about \$50,000,000 paid by New York into the Treasury on account of the loan. The banks now hold a little under \$75,000,000 in excess of legal requirements. Loans were shown to have expanded \$6,743,300, and deposits decreased \$4,184,100. The following is the comparative statement for the past two weeks:

	February 10.	February 17.	Changes.
Loans.....	\$432,585,000	\$439,328,300	*\$6,743,300
Specie.....	17,799,700	98,587,000	+9,212,700
Legal tend- ers.....	111,378,100	108,447,900	+2,930,200
Net depos- its.....	534,176,400	529,992,300	+4,184,100
Circulat'n.	12,422,600	11,975,300	+447,300

* Increase. † Decrease.

Notwithstanding the withdrawal of funds invested in the Government bonds, the money offered on loan shows no appreciable diminution. The offerings are still largely in excess of the demand, and rates in the loan market remain exceedingly easy. Call money continues on a 1% basis, and time loans are effected at 2% @ 3½% for 60 days to six months on any fair collateral. Some of the banks are said to be loaning on grain collateral. Mercantile paper has been dull, because of the limited amount of good material on the market, and not from any lack of demand. Rates are 3½% @ 3¾% for indorsed bills; 4% @ 4½% for first class single names, and 4½% @ 6% for others.

The feature of an otherwise dull stock market has been the extraordinary performance of American Sugar Refinery certificates, in which a tremendous selling movement developed toward the close of last week, approaching nearly 150,000 shares in one day. The fluctuations of this stock have, however, little or no bearing on the market in general, Sugar being notoriously used as a gambling medium. The transactions in this stock comprised more than

one-third of the whole week's trading. The declaration of a dividend by Burlington on Friday caused a recovery in that stock, which secured a smart advance, St. Paul and other granger stocks sharing in the improvement. A decline of nearly \$10,000,000 in the revenue receipts on spirits for the first seven months of the fiscal year caused a sharp selling of Whisky Trust certificates on Saturday. Otherwise the week closed dull and lifeless, with but slight changes in list prices. The granger stocks profited by the sharp rally in wheat on Tuesday, but otherwise the market in the beginning of this week has been quiet and dull, closing on Wednesday with a fairly strong tone. The following list exhibits the extreme fluctuations of some of the active stocks, with closing prices on Wednesday:

	High- est.	Low- est.	Closing Feb. 21
Am. Sugar Ref.....	82½	77½	79½
Atchison, T. & S. F.....	12½	11½	12½
Chicago Gas.....	66	62½	63
Chic., B. & Q.....	76½	75½	75½
Chic., Mil. & St. Paul.....	57½	55½	57½
Chic., Rock Isl. & Pac.....	67	65½	66½
Distilling & Cattle Fdg.....	29½	26½	26½
Gen. Electric.....	36½	35½	37½
Louisville & Nashville.....	47	45½	46½
Manhattan.....	123½	121	123½
Missouri Pacific.....	23½	21½	22½
National Lead, Common.....	29½	28½	29
New York Central.....	99	97½	98½
Philadelphia & Reading.....	22½	20½	21½
Richmond & West Pt.....			
Term.....	4½	3½	4½
Tennessee Coal & Iron.....	19	18½	19½
Western Union.....	84	83½	83½

The railway and general bond market has been dull, and prices irregular, with a tendency to scarcity in the first-class issues available. Government bonds have been firm. The new 5's were quoted for the first time on Monday. The latest sales on call were \$30,000 coupon 4's, at 114½; \$10,000 gold 5's, coupon, at 117½; and \$10,000 do., registered, at 117½. The closing quotations were as follows:

	Bid.	Asked.
2's, 1891, registered.....	96
4's, registered.....	113½	114½
4's, coupon.....	113½	114½
5's, registered.....	117½	117½
5's, coupon.....	117½	117½

An advance in sterling exchange has revived expectations of gold exports, as the rate has nearly touched the point at which exports can be made with profit. The foreign bankers who are usually most active in this business declare, however, that they will ship no gold until the rate advances at least 1% more. Actual business was done on Wednesday at \$4.86 @ \$4.86½ for 60 days, \$4.88 @ \$4.88½ for demand, \$4.88½ @ \$4.88½ for cables and \$4.85 @ \$4.85½ for commercial.

Domestic exchange on New York is quoted as follows: New Orleans, commercial 75 premium, bank 100 premium; Charleston, buying par, selling ½ premium; San Francisco, sight 25, telegraph 30 premium; Savannah, buying par, selling ½ premium; Chicago, 25 premium; St. Louis, 75 premium.

Silver, which took a slight rise late in last week, fell again on Tuesday to a lower point than it has ever yet reached, being quoted in London at 28½ pence and in New York at 62½¢ per ounce. In the last two months exports of silver have been \$3,250,000 in value, or over 12,000,000 ounces. This large amount of the metal thrown on the foreign markets may account in a great measure for the drop in value to the lowest point yet reached. More than 1,000,000 ounces were shipped to Europe during the week.

British Iron and Metal Markets.

[Special Cable Dispatch to The Iron Age.]
LONDON, WEDNESDAY, February 21, 1894.

The market for Pig Tin has remained flat. Spot lots were sold at as low as £68. 5/, under the influence of the depression in Silver, uncertainty regarding the future, and heavy supplies sent forward from the Straits. Lowness of prices served to bring about some degree of steadiness later on. This was helped in some degree by the recovery in Silver, and a fair business passed during the last few days, particularly in prompt deliveries. This carried prices down to £68 for prompt delivery and £68. 15/ for three months' futures.

Copper is higher in price and the market is looking decidedly firmer under the influence of larger purchases, in which both speculative operators and consumers shared. Meanwhile prices fluctuated more or less under speculative manipulations and reports of comparatively low rates having been made on English Tough and best selected Ingots. Furnace material has been slow and sales were made at a considerable reduction in prices, but the late improvement in sales of Refined Copper turned the market for the better. Official statistics show a reduction of 205 tons in spot stocks and 107 tons in European visible supply during the first half of the month, despite depression in trade and heavy imports of American Copper. Chili charters were 1100 tons. Late sales were at £41. 15/ for Merchant Bar prompts and £42 @ £42. 2/6 for futures.

The market for Tin Plate has been quiet. Some speculative inquiry prevailed for far forward deliveries, but buyers' ideas were much below ruling prices, and little business was effected. More mills are being closed down owing to lowness of prices. Sales have been made of ordinary Bessemer Cokes, 14 x 20, at as low as 9/9, f.o.b. Wales, and on other sorts prices average 1½ pence lower than they have been recently, on moderate sales. For Terns and Black Plates the market is very dull. Stocks of Plates at Swansea are now about 229,000 boxes. Liverpool prices are quoted as follows:

IC Charcoal, Alloway grade.....	12/3 @ 12/9
IC Bessemer Steel, Coke finish.....	10/6 @ 11/
IC Siemens.....	11/ @ 11/3
IC Coke, B. V. grade, 14 x 20.....	Nominal.
Charcoal Terns, Dean grade.....	10/3 @ 10/9

Pig Lead prices have ruled fairly firm at £9. 5/ @ £9. 7/6, but only a moderate business has passed, and the demand at present is slow.

Spelter is slightly firmer at £15. 17/6 @ £16 for Soft Silesian, but sales have been only fair and the demand at present is moderate.

Quite large contracts for Ship Plates have been placed recently in Barrow, and a better inquiry is noted for heavy Steel Rails. There has also been some improvement in other lines. Pig Iron warrants have recovered a late decline and the market is at present quite firm. Late sales of warrants were at 43/7 @ 43/8 for Scotch, 36/ for Cleveland and 45/6 @ 45/9 for Hematite.

A press dispatch from Trenton, N. J., states that the large factory of the Trenton Iron Company was almost entirely demolished on February 20 by the bursting of a big fly wheel of the

Corliss engine which is used in the building. Happily, only one workman was injured.

The annual meeting of the Lake Superior Consolidated Iron Mines Company was held in Newark, N. J., on February 20. The following directors were elected: Fred. T. Gates, George D. Rogers, George McWood Murray, Charles E. Schneider, D. B. Seale, Edward S. Cary and Lewis J. Merritt. The officers chosen were: Fred. T. Gates, president; George D. Rogers, vice-president; Charles E. Schneider, secretary and treasurer; Edward S. Cary, assistant secretary, and George W. Murray, general counsel.

P. R. Dillon has been made a member of the Board of Managers of the Carnegie Steel Company, Limited, Pittsburgh. Mr. Dillon also retains his position as assistant secretary.

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HARDWARE.

Condition of Trade.

BUSINESS CONTINUES to be characterized by the same general features as for the past week or two, with perhaps a slight falling off in the demand. This is regarded as owing to the fact that with the opening of the year a good many houses placed orders for the replenishing of their stocks, and this having been done there is a disposition to await the active opening of trade before purchasing further. The fact that the end of the month is approaching has also some influence on buyers. The general demand, however, continues fair and many of our advices indicate a continuance of the improved feeling which has been apparent since the opening of the year. With the large force of travelers on the road and the efforts which are being made by manufacturers and their representatives to secure orders, the aggregate volume of business is unquestionably fair, though not yet as large as under usual conditions is expected at this time. Prices are without important change, but the tone of the market is not strong; and notwithstanding the improved condition in Barb Wire and Wire Nails the tendency is toward lower quotations on some lines of goods, especially those that lie near the raw material. The desire of manufacturers to keep their works in as full operation as possible also has the effect of making them willing to shade prices in some cases. Under these conditions there is a marked absence of speculative buying and the trade are wisely pursuing the conservative policy which has characterized their operations for some time. Collections on the whole are probably in excellent condition, but some complaint is made of sluggishness in remittances.

Chicago.

(By Telegraph.)

Shelf Hardware jobbers in some cases report the best trade of the year now coming in, but others are not so well favored, finding their orders falling somewhat below those of last week. Jobbers of Tinware and related goods report the first three days of last week as showing a decided improvement in Tinware and tinnery stock, but later in the week trade fell off to some ex-

tent. The well-known establishment of Norton Brothers in this city was completely destroyed by fire on Monday evening, and it will besome time before the gap in the local trade thus created will be filled. The firm have another large establishment, however, at Maywood, from which they will be able to supply most of their specialties. The Heavy Hardware trade is spasmodic, days of fair business being followed by periods of dullness.

St. Louis.

(By Telegraph.)

There is more or less complaint among jobbers regarding trade. The recent cold snaps have interfered more or less with the demand, and there is a feeling of uncertainty regarding the future, which only helps to complicate matters. The demand for shelf goods is very light, and seasonable goods are only having a fair sale. The recent advance in Barb Wire is being firmly maintained. A rumor is current that the next three months' supply of Wire Rods is controlled by a combination, or, in other words, Rods are reported to be cornered. Should this be correct, Barb Wire and Wire Nails are very cheap at prices ruling to-day. Orders for all lines continue small, indicating that complete confidence has not as yet been restored. Prices do not show any particular change, but when changes occur they are usually in the shape of reductions. Stamped Ware is enjoying a good demand. Agricultural implements are only in fair demand.

Notes on Prices.

Wire Nails—The Wire Nail market is represented by the quotation of \$1.10, for carload lots at factory, a price which is adhered to except in the case of unusually large and attractive orders. The market is characterized by an excellent tone, the mills being well supplied with orders, and some buyers being still in the market. There is also a good inquiry from other houses whose purchases are not so large, and the outlook for a continued demand is regarded as excellent.

Chicago, by Telegraph.—Inquiries for Wire Nails are good and orders are being placed by buyers who had already contracted for what they supposed would cover their wants for the spring trade. The price on factory lots is now practically \$1.20, Chicago, with some manufacturers asking up to \$1.25. Quotations are being made for immediate acceptance, owing to the continued pressure for rapid shipments on contracts and the steady receipt of

inquiries and orders. Jobbers report a good demand from their trade and quote mixed carloads at \$1.20, while small lots from stock are selling at \$1.25.

Cut Nails.—The Cut Nail market is in substantially the same condition as last week. The market in the East is represented by the manufacturers' quotation of \$1.05, for carload lots on dock, New York, and the Western market by the quotation of \$1.00 to \$1.05, at mill. The price from store in New York is firm at \$1.15.

Chicago, by Telegraph.—The inquiry for Cut Steel Nails has improved considerably. Orders were quite freely placed during the past week from various parts of the territory tributary to this market. The Lakeside Mill started up on Monday with an accumulation of orders which will insure a steady run. Factory lots are quoted at \$1.05, Chicago, on a 60 cent average, while small lots from stock are unchanged at \$1.15 to \$1.20.

Barb Wire.—There have been no important developments in the Barb Wire market since our last review, and the manufacturers are apparently adhering to the new and advanced prices. The market is thus represented by the quotation of \$2.15, for carload lots of Galvanized Four Point, at Pittsburgh, \$2.20 at Cleveland, \$2.25 at Cincinnati or Allentown, and \$2.35 at New York. There is a good deal of inquiry for Barb Wire and it is understood that some orders have been placed at the advanced prices.

Chicago, by Telegraph.—The heavy storm last week, which was general throughout the Northwest, is credited with checking the demand for mill shipments of Barb Wire, so that the week compares unfavorably with the record of its immediate predecessors. This is expected to be made up shortly, however, as it is too late in the season for snow storms to influence trade unfavorably in a good portion of the West. Prices are now \$2.30, Chicago, for carload lots of Galvanized, while small lots are selling from stock at \$2.35 to \$2.40. Jobbers report a continued excellent demand from the country merchants.

Wrought Iron Pipe.—The market for Wrought Iron Pipe is lower and somewhat irregular. This is owing to the light demand and the active competition for business.

Traps.—We are advised by the Oneida Community, Kenwood, N. Y., that they have withdrawn the discounts on

their Traps, which were named in our issue of February 8, and instead of them announce the following:

	Per cent.
Newhouse.....	40 and 10
Hawley & Norton.....	70 and 5
Victor.....	70, 10 and 5
All Steel.....	75
Star.....	50 and 10

Rope.—With the moderate demand which has prevailed for some time the Cordage market has developed weakness and Manila can be purchased in large lots, f.o.b. factory or New York, at 6¼ to 6½ cents per pound basis, a price which is subject only to the cash discount of 1½ per cent. Sisal is also obtainable in similar lots at 4¼ cents, and Jute at 5 cents, in the present condition of the market Sisal Hemp being lower than Jute Hemp.

National Coffee, Drug and Spice Mill.—This article was described in our last issue as put on the market by the National Specialty Mfg. Company of Philadelphia. The mill is sold to the trade at \$21 per dozen, subject to a discount of 30 per cent.

National Measuring Faucet.—National Specialty Mfg. Company, Philadelphia, are putting this article on the market, a description of which was given in a recent issue. The Measuring Faucet is sold to the trade at \$36 per dozen, subject to a discount of 25 and 10 per cent.

Handy Holder.—The Handy Holders manufactured by H. C. Weidenmann, 3517 Wallace street, Philadelphia, Pa., an illustrated description of which appeared in *The Iron Age*, February 15, 1894, are sold at \$15 per 100, subject to a discount of 40 per cent. 30 days, with an additional discount of 5 per cent. for spot cash.

Sheet Zinc.—Under date February 15, Matthiessen & Hegeler Zinc Company, La Salle, Ill., issue revised quotations on Sheet Zinc. The price remains \$4.50 per 100 pounds for Sheet Zinc in 600-pound casks, of the thicknesses between Nos. 9 to 15, inclusive, and of the widths between 32 to 46 inches, and of the lengths between 84 to 90 inches, and the extras also are unchanged. The following revised discounts are, however, announced:

Discounts.	First class. 15 600 pound casks, and up- ward.	Second class. 10 to 14 600 pound casks.	Third class. 5 to 9 600 pound casks.	Fourth class. Under 5 600 pound cakes.
	Per cent.	Per cent.	Per cent.	Per cent.
Special	4	4	4	4
Cash with order.	3	3	3	3
Quantity	3	2	1	0
Total.....	10	9	8	7

All discounts are computed straight when money accompanies order, quantity discount being added to special discount in all cases. If remittance is received within 10 days of date of invoice the cash discount will be only 2 per cent. instead of 3 per cent., and not com-

puted straight. Each order is strictly subject to the quotations of the class to which it belongs.

Glass.—There has been little change in the glass market during the past week, with no indications of any increase in prices. Demand has not been at all active, while the unfavorable weather during the past week has had a tendency to curtail orders. Factories have kept their production close to the demand, and there is but a slight increase in the number of factories in operation. There are indications of improved demand in Plate Glass, but prices, it is understood, are very low; in fact, it is difficult to obtain quotations except on specifications. It is reported that the low prices are attributable to a war now being carried on by the large companies engaged in the business. The New York Window Glass market is represented by the quotation of 85 @ 85 and 5 per cent. discount for single strength Glass in small quantities, and 85 and 10 per cent. discount in car lots. Pittsburgh quotations are reported as being 85 and 10 and 5 per cent. discount for single and 85 and 20 per cent. discount for double strength Glass. It is understood that factories outside of Pittsburgh are making lower prices. A Muncie, Ind., concern quoted Window Glass under date of February 9 as follows: Single strength, 85 and 10 and 5 per cent. discount; double strength, 85 and 10 and 10 per cent. discount, freight allowed in carload lots.

Tardy Execution of Orders.

REFERRING to the letter which we printed in our issue February 1, in which our correspondent made an inquiry as to the proper course to be pursued in case of tardy execution of orders, we have the following from a Hardware house in Minnesota:

In *The Iron Age* of February 1 I notice an article headed "Tardy Execution of Orders," to which you invite the trade's attention. It seems to me that where a manufacturer or jobber accepts an order for goods to be deliv-

ered at a stated time and from any cause whatever he cannot make shipment as agreed upon, the order practically cancels itself, and were the manufacturer to ship after the specified time he would virtually be shipping without an order. The position your

Catalogue for Retailer's Customers.

F. P. NEWKIRK, Easthampton, Mass., issues an exceptionally attractive catalogue for his retail customers. The catalogue is 6 x 9½ inches in size and contains 79 pages, many illustrations being given of his line of Ranges, Cook Stoves, Furnaces, Registers, Heating Stoves, House Furnishing Goods, Pumps, Carriages, Implements, Tools, Plumbing Supplies, &c. Scattered through the catalogue also are views of the interior of Mr. Newkirk's establishment, while an idea of the appearance of the front of his store may be gained from the first illustration in the book. Mr. Newkirk believes that "keeping everlastingly at it brings success" and that there is no necessity for a small town to fall behind the procession. He makes the following remarks concerning his establishment and his aim in publishing this catalogue.

It has been my aim to allow the cuts to do most of the talking. If I were to give illustrations, however, of all the goods I sell it would make a book so large that you would not take time to look it through. But if you will come to my store I will show you as fine a stock of Hardware, Wooden Ware, Tin and Iron Ware, Paints, Oils, Window Glass, Brushes, in fact, of everything that farmer, mechanic or housewife can want, as you can find in most cities, and my prices are of the lowest.

The store has been recently remodeled and a beautiful wood staircase in the rear leads to the floors above. The basement is devoted to the work shops; plumbing and heating departments. A force of men is always busy on iron and lead piping, plumbing and general jobbing. When you visit the store, don't forget to see the goods in the basement.

Mr. Newkirk took possession of the business in 1874, at which time there was about 2500 feet of floor space. To-day he states that his establishment contains 6000 feet of floor space, besides two storehouses and a large tile yard.

ALFRED ELY & Co., Baltimore, having purchased from Boyd, Jones & Co. of the same city the good will and stock of their mechanical department, have added the latter's complete stock of Wood Pulleys, Leather and Rubber Belting, Packing, Hose, &c., to their large line of machinists' fine Tools and supplies. They have also secured the services of Charles D. Cugle, so long connected with Boyd, Jones & Co., who will have charge of the Mechanical Rubber Goods Department of the house.

The Hardware Club.

AT THE LAST MEETING of the Board of Governors of the Hardware Club, held February 16, a Nominating Committee was appointed to present the names of five members to fill the vacancies caused by the retirement of the governors serving the one-year term. These names, according to the constitutional requirement, will be posted for ten days preceding the annual election, on the third Saturday in March, at the temporary headquarters of the club, in the office of the Union Nut Company, 107 Chambers street. The Nominating Committee consists of the following persons:

W. A. GRAHAM, chairman.

THOS. J. ATKINS.

WILLIAM G. SMYTHE.

J. C. McCARTY.

W. R. McCULLOUGH.

The governors whose terms expire in March are the following:

J. LEONARD VARICK.

THOS. F. KEATING.

EUGENE BISSELL.

R. R. WILLIAMS.

JAMES H. KENNEDY.

Metallic Ammunition.

PETERS CARTRIDGE COMPANY, Cincinnati, Ohio, are about to enter on the manufacture of Metallic Fixed Ammunition. This will include all the leading sizes in Brass Shells from B. B. to Government and Rifle-loaded and empty. They have for years made the Paper Shells, empty and loaded, as well as Shot and Paper and Felt Wads. They use powder made by King Powder Company of Cincinnati, which company they control. For the purpose of enlarging their facilities, they have increased their capital stock to \$300,000. Contracts for large buildings, machinery, &c., have been awarded and construction is being pushed with the utmost rapidity. We are advised no goods of the new line will be put on the market until they have stood the most rigid tests. J. C. McCarty & Co., 97 Chambers street, New York, represent them as agents.

Bicycle Notes.

THE NATIONAL CYCLE SHOW recently held in Philadelphia at the armory of the First Regiment, corner of Broad and Callowhill streets, proved a grand success. The exhibit was in every respect a representative one, all the larger manufacturers being exhibitors, while the general arrangement of the exhibits reflected much credit upon the management. Much attention was given to the surroundings of the exhibits, many being handsomely decorated, some with colored silks and illuminated by electricity, while other exhibits were shown in pavilions brought from the World's Fair. The exhibit was not confined to Bicycles only, but included tires, punctureless armor, drop forgings, tire-repair outfits, handles, cyclometers, frames, machine parts, saddles, tourist cases, lamps, oilers, bells and other accessories and sundries.

ANNUAL MEETING OF THE

New England Hardware Dealers' Association.

THE FIRST ANNUAL MEETING of the New England Hardware Dealers' Association was held at the United States Hotel, Boston, on the afternoon of February 14. The Executive Committee met at 3.30 and at 4 o'clock the regular meeting was convened with President Janvrin in the chair. Eleven new members were admitted, as follows:

NEW MEMBERS.

F. W. Kidd, Lawrence, Mass.

W. L. Presbrey, Taunton, Mass.

W. P. Butler, New Bedford, Mass.

J. B. Dion, New Bedford, Mass.

E. H. Aldrich, Fall River, Mass.

L. E. Stockwell, Norwich, Conn.

W. Irving Heald, Somerville, Mass.

John T. Cushman, West Newton, Mass.

J. B. Taylor, Waltham, Mass.

O. M. Gove, Waltham, Mass.

R. Dowd, Charlestown, Mass.

SECRETARY'S REPORT.

The reports of the secretary and treasurer were received and filed, and that of the secretary was ordered printed and distributed among the Hardware trade in New England. As relating to the manner in which the organization of the association was effected and the conspicuous success which it has met, we take pleasure in giving the following extracts from the secretary's report:

In the early part of 1893 one of our esteemed members, thinking that the time had arrived when Massachusetts should have a Hardware Dealers' Association, similar to organizations in New York, Chicago and Buffalo, wrote to officers of several Hardware associations. The responses were very cordial. Our friend then interviewed several of the largest retail Hardware dealers in Boston, who represented themselves in accord with his ideas. The result was that 11 Boston firms signed a call for a meeting to be held March 8 at the United States Hotel. Not only Boston dealers, but also parties from distant cities and towns were invited to attend.

The meeting took place at the appointed time, and was very well attended, every one present fully approving of the purpose for which the meeting was called. On motion of D. F. Barber of Chandler & Barber of Boston, Hiram G. Janvrin of the firm of M. C. Warren & Co. was chosen chairman, and James A. Farless, formerly of the firm of Farless & Boynton, was chosen secretary. The meeting was very enthusiastic and harmonious, and it was voted to form an association; subsequently the name adopted was the Massachusetts Hardware Dealers' Association. A committee was nominated by the chair to report a constitution and by-laws at a future meeting.

It is highly gratifying to know that the doings of this association for the past year have undoubtedly benefited every member. All business has been done in a very fair and honorable manner, every member having had a full opportunity to express his mind on all the subjects that had been advanced and to be attentively listened to.

The attendance at the meetings has been very encouraging, increasing from 25 members at the first meeting to 72 at our last gathering. In fact, we have been constantly gaining from the start.

Our membership numbers 102, which is better than we expected at the outset. I see no reason why it cannot be increased very much in the next six months if every member will take hold and do something toward it. United effort will accomplish the object.

THE NEW CONSTITUTION AND BY-LAWS.

The committee, consisting of W. A. Burrill, chairman; H. G. Janvrin, F. H. Baldwin, S. H. Thompson and D. F. Barber, appointed to draft a new constitution and by-laws, reported the same. A discussion followed, after which the following new constitution and by-laws were adopted:

Constitution.

ARTICLE I.

This Association shall be called the New England Hardware Dealers' Association.

ARTICLE II.

The objects of this association are social intercourse and the discussion of all matters of interest relating to the Hardware trade.

By-Laws.

ARTICLE I.

Any person in New England engaged in the business of selling Hardware and known and recognized as a regular Hardware dealer may become a member of this association.

ARTICLE II.

FEES AND DUES.

Section 1. The fee for admission to membership shall be \$5 per capita.

Sec. 2. Each individual member of a firm shall be eligible for membership by paying the membership fee.

Sec. 3. The dues of each member shall be \$12 per year, payable in advance in January.

Sec. 4. Persons admitted to membership in each year shall pay in advance as dues if admitted between:

January 1 and April 1.....	\$12.00
April 1 and July 1.....	9.00
July 1 and January 1.....	6.00

ARTICLE III.

APPLICATIONS FOR MEMBERSHIP.

Section 1. All applications for membership shall be on the blank provided by this association, and shall be accompanied by the membership fee.

Sec. 2. All applications for membership shall be referred to the Executive Committee, and if approved by them may be elected by a two-thirds vote of the members present and voting at any regular meeting of the association.

Sec. 3. All fees and dues must be paid before a person can be recognized as a member or become entitled to act in this association.

ARTICLE IV.

OFFICERS.

The officers of the association shall consist of president, first, second and third vice-presidents, secretary, treasurer and seven directors, who shall be elected by ballot at the annual meeting of the association in February. These shall constitute the Executive Committee. No compensation for services shall be paid to any officer except the secretary, said compensation to be fixed by the Executive Committee.

ARTICLE V.

DUTIES OF PRESIDENT.

The president shall preside at all meetings; in his absence the vice-presidents in their order. The president shall appoint all committees unless otherwise ordered or provided for in the by-laws.

ARTICLE VI.

DUTIES OF SECRETARY.

The secretary shall keep a record of all meetings of the association and its committees, conduct all correspondence, notify all committees of their appointment, keep a list of members in a book for that purpose and a record of the guests of the association, and perform such other duties as pertain to his office or may be prescribed by the by-laws.

ARTICLE VII.

DUTIES OF TREASURER.

The treasurer shall receive and have charge of all moneys of the association, collect all fees and annual dues, pay all bills when approved by the auditor and report the condition of the treasury at each annual meeting, and when required by the president.

ARTICLE VIII.

DUTIES OF EXECUTIVE COMMITTEE.

The Executive Committee shall provide rooms for the meetings of the association, and shall have power to fill all vacancies in the Board of Directors, and shall transact all ordinary business of the association not requiring a special vote. They shall also appoint from among their number an auditor, whose duty it shall be to examine all bills, and, if found correct, approve the same and audit the accounts of the treasurer annually.

ARTICLE IX.

PRICING COMMITTEE.

A Pricing Committee, to consist of five members, shall be elected annually at the March meeting of the association. It shall be the duty of the committee to meet monthly, or oftener if necessary, at the call of the chairman, to establish and regulate prices on all such articles as in their judgment may be beneficial to the trade to maintain.

ARTICLE X.

INVESTIGATING COMMITTEE.

An Investigating Committee of three members shall be elected annually at the March meeting of the association. It shall be the duty of this committee to receive and investigate all complaints, provided such complaints are made in writing and signed by the party or parties aggrieved, and that said complaints be accompanied by affidavits or other evidence to form a proper basis of complaint or source of investigation. They shall endeavor to adjust amicably all such grievances or complaints and if unsuccessful shall bring the matter before the Executive Committee for action. All traveling or other legitimate expenses of this committee shall be paid from the funds of the association.

ARTICLE XI.

ENTERTAINMENT COMMITTEE.

The president shall appoint at each meeting a committee of three members, whose duty it shall be to furnish speakers or other entertainment for the next meeting. The expense of such entertainment, not to exceed \$25, shall be paid from the funds of the association.

ARTICLE XII.

REGULAR MEETINGS AND QUORUM.

The regular meetings of the association shall be held on the second Wednesday of each month, except July, August and January, and at such

meetings the members shall dine together. Fifteen members shall constitute a quorum for the transaction of business and five shall constitute a quorum of the Executive Committee.

ARTICLE XIII.

DELEGATES AND GUESTS.

Any firm may be represented by any member or employee at any meeting by presenting to the secretary a proper form signed by said firm. Any member may invite one or more guests to any dinner of the association by paying such sum as may be required by the Executive Committee and notifying the secretary in advance of the number of guests to be provided for.

ARTICLE XIV.

GUESTS OF THE ASSOCIATION.

The Executive Committee may invite to the meetings as guests of the association gentlemen whom, in their judgment, it would be the pleasure and interest of the association to entertain, the expense to be defrayed by the association.

ARTICLE XV.

SPECIAL MEETINGS.

A special meeting may be called by the written request to the president and two firms represented in the association, the president to instruct the secretary to issue notice of such meeting at least five days before said meeting; the time and place to be decided by the Executive Committee.

ARTICLE XVI.

REVISIONS OR AMENDMENTS.

These By-Laws may be amended or revised by a two thirds vote of those present and voting at any meeting of the association, notice of such changes having been given at the previous regular meeting.

The new constitution, it will be noticed, changes the name of the organization to the New England Hardware Dealers' Association, and the by-laws provide for an admission fee of \$5 and raise the annual dues from \$10 to \$12. Otherwise it is practically the same as the old constitution. After the adoption of the new constitution there was considerable discussion of the matter of dues paid by persons who had recently joined and since objected to the increase. This matter, however, was satisfactorily adjusted by a resolution providing that all members who had joined since November 1, 1893, should be retained in membership during the present year by the payment of \$2 additional.

THE NEW OFFICERS.

The meeting then proceeded to the election of officers to succeed those whose portraits appear on another page, as follows: H. G. Janvrin, president; Charles P. Darling, first vice-president; S. H. Thompson, second vice-president; Samuel Trask, third vice-president; D. F. Barber, treasurer, and James A. Farless, secretary. On motion the chair appointed a committee of three to make nominations, and the secretary was instructed to cast the ballot. The following persons were presented and elected:

President,
SAMUEL H. THOMPSON, Lowell, Mass.
First Vice-President,
JAMES W. VINAL, Boston, Mass.
Second Vice-President,
SAMUEL TRASK, Peabody, Mass.
Third Vice-President,
N. P. HAYES, New Bedford, Mass.

Secretary,

JAMES A. FARLESS, Boston, Mass.

Treasurer,

D. F. BARBER, Boston, Mass.

Directors.

HIRAM G. JANVRIN, Boston, Mass.
CHARLES E. ADAMS, Lowell, Mass.
A. S. MORSS, Boston, Mass.
M. W. HANSCOMB, Haverhill, Mass.
C. E. CHAMBERLAIN, Boston, Mass.
JOHN C. HOLDEN, Hudson, Mass.
B. C. PIERCE, Taunton, Mass.

A. S. Morss offered a resolution embodying the thanks of the association and an expression of their deep appreciation of the valuable services of the retiring president, Mr. Janvrin, which was adopted by a unanimous vote. The meeting then adjourned.

THE NEW PRESIDENT.

The new president, Samuel H. Thompson, who appears as one of the vice-presidents in the accompanying group of portraits of the officers of the Association, is a popular and successful Hardwareman, and known to the trade as the president of the Thompson Hardware Company of Lowell, Mass. He has had a wide and thorough experience in business and is regarded as having excellent qualifications for the office for which he has been chosen.

THE EVENING ENTERTAINMENT.

A pleasant innovation had been planned for the first anniversary in the form of a Ladies' Night, and according to programme the ladies met in the parlors of the hotel at 6 o'clock and were joined by the gentlemen at the close of the business meeting. After an hour spent in social intercourse the company proceeded to the banquet hall, where covers were laid for about 125 persons. President Janvrin occupied a place at the head of the table, and acted as toast master. On his right sat William H. Williams, President of the New York Hardware Club, who was the guest of the evening. Among others at this table were Charles H. Dowse, Samuel A. Bigelow, S. H. Thompson, S. A. Morss and James A. Farless.

THE PROGRAMME.

The programme of the evening was as follows:

W. H. Williams, (President New York Hardware Club,)

Remarks.

Song. Miss E. L. Hathaway,

"The Dear Homeland."

Toast. A. S. Morss.

"Our Lady Guests."

Reading. Miss Ida Florence,

Selected.

Toast. E. J. Neal,

"Commercial Tourist."

Song. Miss Bertha Davis,

"Angel Serenade" } Violin
obligato.

Reading. Miss Ida Florence,

Selected.

Toast. C. E. Adams,

"The Typical Hardwareman."

Songs. Miss E. L. Hathaway,

{ a "Garden of Sleep."
b "The Devoted Apple."

Reading. Miss Ida Florence,

Selected.

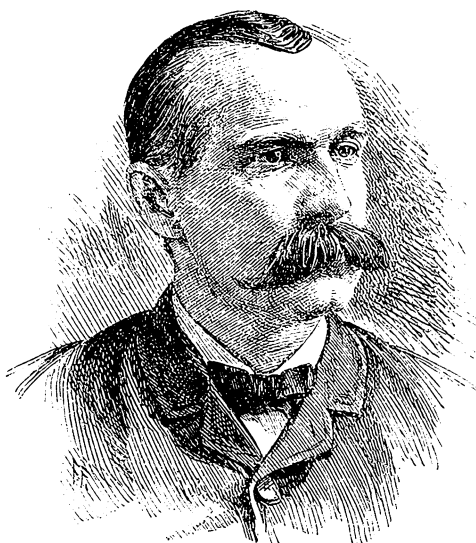
Song. Miss Bertha Davis,

Selected.

Promptly at 7 o'clock the president called the company to order and Mr. Thompson invoked Divine blessing,

musical tastes of the guests. After coffee President Janvrin made a short address, alluding to the growth

that ladies' night might become a permanent feature of the association. W. H. Williams, president of the New



H. G. Janvrin



Samuel H. Thompson



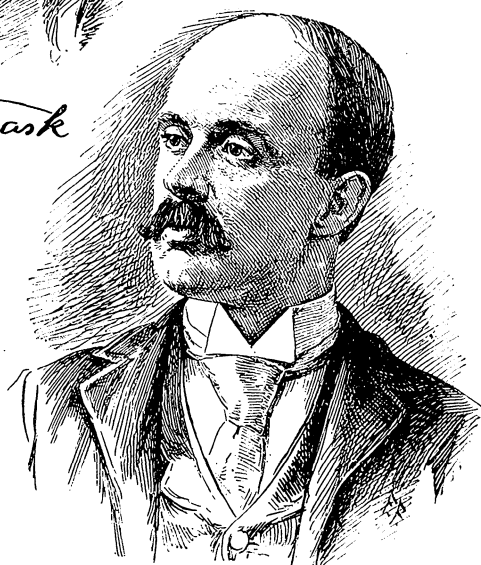
Samuel Frank



Charles P. Darling



James A. Fairley



D. Fletcher Barber

after which appropriate attention was given to an excellent dinner, during which an orchestra ministered to the

of the club, which started just one year ago with 11 members and now numbered 102, and expressed the hope

York Hardware Club, was then introduced and made the following address, which was very well received:

SPEECH OF W. H. WILLIAMS.

One who stands for the first time before a Boston or a Massachusetts audience should be pardoned some degree of embarrassment. As a small boy I thought the acme of human greatness would be reached if I should ever be invited to ride in a Fourth of July procession—sitting at the right hand of the president of the day. But our ideals change as we grow older, and when as a youth I had become interested in the study of my country's history, and especially that of New England and her public men, I thought my ambition would be satisfied if I should ever receive an invitation to address even a small portion of the townsmen of Everett, of Phillips and of Sumner. But alas for the dreams of youth! I find myself this evening before an audience in Boston painfully conscious that I lack the eloquence of my heroes with which to fittingly acknowledge the great compliment of your invitation and the kind cordiality of your greeting.

I am indebted to your committee for not having assigned me to any special toast, and also for their suggestion that something concerning the organization with which I am connected in New York would be acceptable to this gathering, for naturally I am greatly interested in the Hardware Club of New York, and it is agreeable to think that you share, to some extent, at least, that interest. Our organization had its origin in the same desire to promote unity, harmony and good fellowship in our trade that, I understand, was the basis of your own association. In the antebellum days, the Hardware men of New York, I believe, had met on several occasions around the social board and had enjoyed it so much that they determined to have a permanent organization, but the war came on and interrupted their annual meetings, and they were not resumed until about two years ago. At a dinner we had in the early part of 1892 so much enjoyment was obtained and so many surprises were developed concerning the material we had for agreeable social converse, that it was regarded as something to be deprecated that we should not meet more frequently, and a suggestion was made that a Hardware club be formed. Our trade papers took very kindly to the idea and gave it immediate currency, and within a few weeks a club was organized of which I had the honor of being chosen president. A building was in process of erection which promised to furnish a suitable place for a permanent headquarters for the club, and we were fortunate in securing in it most desirable accommodations. Within a couple of months we hope to be established in them. In the mean while, so great has been the interest in the organization felt by its members, that we have been able to hold together a membership of several hundred on the prospect of soon having a permanent home. We believe that it will be very beneficial to us, individually and collectively, to have an opportunity of meeting our friends, customers and acquaintances in the trade, and meeting on what may be termed neutral ground. We believe thoroughly in associations of this character. We believe that the rivalries and asperities of business life are very considerably mitigated when we come to know better and see more frequently our neighbors and our competitors, as well as our customers. We believe that we are engaged in a calling of which we may well be proud. We know that it embraces large numbers of men whom it is a pleasure and a privilege to know, and that any club or association which en-

larges the opportunities for knowing better the people in our own trade will add to our stock of pleasure and happiness, while at the same time it will be of material advantage to us. Well established and well conducted organizations of this character tend to give dignity to our occupation, and whatever does that deserves encouragement.

You have introduced one feature into your meetings worthy, I think, of emulation, and I intend to bring it to the notice of my brethren in New York, in the hope that it will be followed by them. I refer to the occasional presence of ladies at your feasts. I understand that you have eight or ten meetings per year, and I must commend the clear-headed wisdom of those who suggested this innovation. For, quite apart from the great pleasure which their presence affords, it must be a great satisfaction to you, gentlemen, to be able to say to your wives or lady friends, "You see how decorously we behave ourselves at these dinners; we always do just as we are doing here to-night. There is never a word spoken that we would not care to have you hear. We get through early and go straight home to our hotels or homes, and are up bright and early for business next day." This experience will certainly make the wives of the members of the association look with more leniency upon the monthly meetings and they will only regret that you do not have a ladies' night oftener. Should any of the members need excuse or justification for their absence from home in the interest of trade, you will in the future, I am sure, find your association quite as good an excuse as "lodge night," "prayer meeting," or "urgent business in Boston."

New York men, as you are aware, are very domestic in their habits, and their wives dislike to have them go out alone. If, therefore, your example should be followed by the New York Hardware Club, I have no doubt it would be productive not only of enjoyment, but would make the families of members more reconciled to the occasional absences of members of the club in their devotion to club affairs.

There are few of us but can with truth admit that the friendships we have formed in business play quite as important part in making up the happiness of life as any other. Frequently they gain a closer hold upon us, for we come to know our business friends more thoroughly than we can any other, and when trouble or adversity comes, the kindly sympathy and the friendly words of encouragement that greet us from those who have known us in the ins and outs of business are very welcome and very comforting. We are too apt to depreciate our own avocation. We frequently hear men express the opinion that had they chosen another calling they would have had a more congenial occupation and would have been more successful. I do not sympathize with this feeling, for the business in which we are engaged is as honorable as it is ancient, and contains avenues which lead to a fair share of honors, of happiness, and of material success.

As we linger over the deeds of heroism and patriotism which illuminate the pages of the world's history, we are apt to lament our own inability to rival the great achievements of others, and to sigh over the fancied degeneracy of our own times. Rather should we find in those deeds courage and inspiration for personal fidelity to duty, even in the humble spheres of business, and the routine of daily life. Gustavus Adolphus yielding up his life in the cause of Protestantism at Lutzen; Martin Luther at Wittenberg publicly committing to the flames the Papal bull which excommunicated him from the Church of Rome, or battling

for liberty of thought and conscience at the Diet of Worms; James Otis thundering against the Writs of Assistance; Franklin pleading the cause of his country at St. James and St. Cloud; Paul Revere rousing the patriots at Concord and Lexington in behalf of freedom; Webster in the American Senate stemming the tide of nullification and secession in the name of liberty and union; Lincoln striking the shackles from the limbs of 4,000,000 slaves, and Grant at Appomattox receiving the surrender of the armed forces of rebellion and treason, these are grand and heroic pictures which may well fire our imaginations and kindle our enthusiasm; but they are not more grand nor more heroic than the silent, unheralded and unrecorded services rendered for God, for country and for mankind, which give to human progress and to human achievement their true grandeur and their imperishable glory.

"OUR LADY GUESTS."

The toast "Our Lady Guests" was responded to by A. S. Morss, who was introduced as one of the oldest members of the Hardware trade in Boston. The speaker handled the toast in a very happy manner, paid the ladies many compliments, and spoke of articles of Hardware of interest to them. He also told a story of a dudish young man, who came into his store and said in the most affective of tones, "I should think continual association with so much iron and brass would have a hardening effect upon you." "Yaas," said Mr. Morss, imitating his visitor's drawl and looking squarely at him, "it is a relief to gaze at something soft."

A. J. NEAL'S ADDRESS.

The toast "Commercial Tourists" was responded to by A. J. Neal of the Peck, Stow & Wilcox Company in the following interesting remarks:

I feel somewhat embarrassed to-night in speaking of the commercial traveler before the ladies, for it occurred to me while sitting here that I have heard a great many young ladies, and some older ones, even widows, declare in the most emphatic manner that they would never, never marry a traveling man.

Now, believing that there must be some good reason for such a strong declaration, and considering the fact that I belong to the proscribed class, you cannot blame me if I speak with fear and trembling. Notwithstanding the apparent disfavor with which the gentle sex regards the "drummer," they do marry them, and I can bring you abundant proof that the commercial traveler gets the most amiable and lovely wife in the world, so that there must be after all some good qualities about him, or the poor girls are most cruelly deceived.

The commercial men, numerically speaking, are a large class, numbering in the United States, I think, more than 300,000. They are also a very remote class. We read of them in the Bible, about the year 1729, B. C. Joseph's brethren became jealous of him, presumably because he was brighter than they, and sold him to a lot of commercial travelers going down into Egypt. I think it is generally admitted that the class of men employed in placing goods upon the market to-day are far superior in business ability, and I will also say in moral character, to the same class employed 30 years ago. Then competition was not so sharp as it is to-day and it was comparatively easy to dispose of your goods. To-day it re-

quires a different kind of man, he must be wide awake, thoroughly posted up to last night or he will drop out and the procession will pass by him. But the traveling man of to-day fills the bill, and it has been stated that if the commercial travelers of the country could be gathered together in one mass their heads would measure more in circumference than those of any other body of men on the face of the earth.

But do not think for a moment because he seems to be a happy and careless fellow that it is all smooth sailing. How often have we been through the lists and discounts with one of our most cherished customers and left him with buoyant spirits, feeling that we had at least his trade solid, only to return after a few weeks to find that while the good man slept the enemy had been there and sown tares in the field in the shape of lower prices, and we are told by the merciless buyer our prices are not right, and if we wish to hold his trade a revision must be made. However, on the whole his life is not a disagreeable one. He plays whist in the smoking car, and I fear some of them play poker at the hotel. He can tell you all about the pugilists thirsting for gore in Florida, and will forecast the make up of the baseball teams for '94; and if you ask him how trade is, he will answer you as the bootblack did who had lost both legs—"I can't kick."

The last toast of the evening, "The Typical Hardwareman," had been assigned to C. E. Adams, who was present, but he yielded to Samuel H. Thompson, the new president of the association. Mr. Thompson spoke of the beneficial results of trade organizations, especially in their tendency to mitigate the rancor of competition, and commended the modern Hardwareman as a better type than his predecessor, who preferred to buy lead in rolls and cut it with a jack knife.

Between the speeches there were songs and recitations, which added much to the pleasure of the occasion, and an excellent solo closed the entertainment.

The first anniversary of the New England Hardware Association was a complete success and "Ladies' Night" is no longer an experiment. Much credit is due to the committee in charge of the entertainment, which included Chas. P. Darling, chairman; S. H. Thompson, E. L. Richards, H. M. Sanders and E. A. Lewis.

Keuffel & Esser Co.'s Catalogue.

KEUFFEL & ESSER COMPANY, 127 Fulton street, New York, and 265 State street, Chicago, manufacturers and importers of drawing materials, engineering and surveying instruments, &c., have recently issued the 25th edition of their illustrated catalogue and price-list of these goods. It contains 304 pages, 8 $\frac{3}{4}$ x 5 $\frac{1}{4}$ inches. They lay emphasis on the fact that they have not only copyrighted the whole work, but separately copyrighted upward of 300 illustrations for the purpose of protecting their patrons against counterfeited reproductions. On the reverse of the title page is an illustration showing their five story factory in Hoboken. Facing that is a cut of the new building at 127 Fulton street and 42 Ann street in this city, in which are their salesrooms. The seven pages of two column index contain almost

everything necessary for the use of draftsmen, engineers, surveyors, &c., in the way of materials and instruments. They are getting more and more into classes of goods which are called for in the retail Hardware stores.

St. Louis Stamping Co.'s Price-Lists.

THE ATTENTION of our readers is directed to the eight-page advertisement of the St. Louis Stamping Company, St. Louis, Mo., which appears in this issue. These pages contain the reduced price-list of their well known Granite Ironware and also the standard list of their Imperial Enameled Steel Ware. These lists include every article they manufacture, both in Granite and Imperial Ware, and are arranged in a systematic manner, which will be appreciated by the trade. Many of our readers will doubtless preserve these lists, as they will be found extremely useful in ordering these well known goods. This company have recently issued a new catalogue of both Granite Ironware and Imperial Enameled Steel Ware, which will be sent to the trade on application.

Bicycles for 1894.

ROCHESTER CYCLE MFG. COMPANY, Rochester, N. Y., advise us that they are offering a line of strictly high grade Bicycles containing all modern improvements. In addition to the double diamond frame with double ball bearings they have added a line of single diamond frame Humber patterns and a ladies' Rochester. The machines shown are as follows: Rochester Bicycle Model A, weighing 26 pounds, listing \$125; ladies' Rochester, weighing 30 pounds, listing \$125; Rochester scorchers, listing \$125; Rochester roadster, weighing, all on, 39 pounds, stripped, 34 pounds, listing \$125, and the racer, of which the specification of Model A are applicable throughout, except that the parts are all made lighter in the racer; either Whippet, Morgan & Wright or Palmer racing tires being used, as ordered.

F. F. IDE MFG. COMPANY, Peoria, Ill., are offering high grade wheels in four weights: 23, 25, 28 and 30 pounds. The Ide Special Model A is fitted with wood rims, weighing 23 pounds, track weight 20 pounds, listing \$140; Ide Special Model B weighs 25 pounds, listing \$140; Ide light roadster, weighing 25 pounds, listing \$125; Valid Special, weighing 28 pounds, listing \$115; and the Valid, weighing 30 pounds, listing \$100. Special attention is directed by the manufacturers to their elliptic crank, interchangeable sprocket and lap brazing, all of which, they state, are special patented features controlled by them. The manner of re-enforcement produces a very neat finish and materially adds to the strength of the frame. The interchangeable sprocket is so arranged that the gears can be changed in five minutes with only the use of an ordinary pocket wrench.

THE QUADRANT CYCLE COMPANY, Boston and Chicago, have the following machines for 1894: No. 22 light roadster, weight 32 pounds; No. 22 road racer, weight 28 pounds; No. 22 path racer, weight 22 pounds; No. 22 special racer, weight 19 pounds; No. 18 A, ladies', weight 32 pounds; No. 23, medium price, weight 36 pounds, and No. 19 tandem safety, weight 56 pounds. A No. 8 B Tricycle, 1894 pat-

tern, is also made, weighing 39 pounds, complete with rubber pedals, brake, mud guards and pneumatic tires, to carry a 280-pound rider without any strain whatever on the working parts. Among their 1894 specialties are mentioned a new crank and new adjustment to ball head steering. They continue the manufacture of the Quadrant. The company are headquarters for the Puncture Proof Bands for Bicycle tires.

WARWICK CYCLE MFG. COMPANY, Springfield, Mass., have a line of high grade wheels including the Warwick racer, weighing 20 pounds, listing \$150, with a handle bar with which the rider can instantly raise or lower the handles to any position required without the use of a wrench; Model 19, weighing 25 pounds, fitted with wood rims and road tires, listing \$125; Model 17, the same as Model 19, with the exception that it has an 8-inch head and lower frame; ladies' Model 18, weighing 28 pounds, listing \$125. Model 15, weighing with wood rims 29 pounds, listing \$115; ladies' Model 16, weighing 32 pounds with wood rims, listing \$115; Model 13, weighing 32 pounds, listing \$100, and ladies' Model 14, weighing 34 pounds, listing \$100. Morgan & Wright and Palmer tires will be fitted to wood rims, and the Huestis and G. & J. tires to steel rims.

PREMIER CYCLE COMPANY, 34-38 Watts street, New York, will use their helical tubing in all Premiers for 1894. Their line of wheels includes the helical roadster Premier, listing with Columbia or Morgan & Wright tires, \$130; with Palmer or Dunlap tires, \$135; helical road racer, weighing, all on except bag and tools, 27 pounds, listing with Columbia or Morgan & Wright tires, \$145; with Palmer or Dunlap tires, \$150; helical Premier racer, weighing, all on, 20 pounds, listing with 1 $\frac{1}{2}$ -inch racing Palmer or Dunlap detachable tires, \$150, and helical ladies' Premier, listing with Columbia or Morgan & Wright tires, \$130; with Palmer or Dunlap tires, \$135. In the racer and road racer there are ball races at both top and bottom of steering head separate from the head tube. Crank shaft bearings are placed in the expanded ends of the bracket and spokes are true tangent.

A New Hardware Store.

J. J. HILL and **A. STEITLER, Jr.**, have purchased the large dry goods store of the A. J. Mitchell Company, located on Main street, Owensboro, Ky., for \$18,000, and as soon as the dry goods business can be closed up they will take possession, which they hope will be about March 1. A partnership will then be formed to do a general wholesale and retail Hardware business, probably under the firm name of Hill & Steitler. The building will be remodeled so as to enable the new firm to carry as large and varied a stock of goods as possible. The building is one of the handsomest in Owensboro and has a frontage of 30 feet, running back 156 feet to an alley. It is three stories high, with a handsome pressed brick front and broad stairways and elevators connecting the separate floors. The new owners will enlarge the cellar, put in additional shelving and equip the entire building in a manner suitable for the scale and character of their business. Mr. Hill has been in the Hardware business for over 30 years and has occupied his present stand on East Main street for the past 17 years. Mr. Steitler has been identified with the sale of Hardware for ten years, and his store on Main street, a few doors from the Mitchell Building, is one of the most attractive in the city.

Trade Items.

C PRATT has taken a portion of F. J. Mattison's office, at 69 Beekman street, New York, and is offering, as agent for this territory, a line of fine Cooking Utensils at very low prices. These goods are manufactured by Hall & Carpenter, Philadelphia, Pa., and are known as Crown Scorch Proof Cooking Utensils. The manufacturers guarantee them made of XXXX best charcoal tin, with 20-ounce copper bottoms. They are double bottomed, the copper extending up the sides from 1 to 1½ inches. The space between the bottoms is filled, they state, with the finest quality of asbestos, making the vessels proof against scorching or burning. This line of goods, patented in the United States and in Canada, consists of Saucepans and Kettles, each four sizes, 2 to 6 quarts; Sauce Pots, 8, 10 and 12 quarts; shallow Stew Pans, four sizes, all with heavy retinned covers, and Chocolate Pots, 2, 3, 4, 5, 6 pints. The outer surface is buffed to improve its appearance. The Crown Asbestos Stove Mat, circular in form and 9 inches in diameter, is offered in connection with the other goods.

WE ARE ADVISED by Wilcox, Crittenden & Co., Middletown, Conn., that some 15 or 20 years ago they put on the market a Socket Rowlock similar to that manufactured by Newhall Ship Chandlery Company, 105 Chambers street, New York, a description of which was given in a recent issue of *The Iron Age*. Wilcox, Crittenden & Co. named it the Centennial and carry in stock an assortment of all sizes.

WE ARE ADVISED that the Frasse Company, 19 Warren street, New York, are closing out their line of Tools, Files, Steel and general supplies for machinists, jewelers, die sinkers, silversmiths and other mechanical branches. The stock comprises Stubs' Tools, Steel and Files, Grobet's Files, Rollason's Piano Wire, Chucks, Drills, Lathes, Molders' Tools, Starrett's and Stevens' Tools, Chesterman's Tapes and Rules, Taps, Dies and Screw Plates, Reamers, Belting, Vises, Emery Wheels, Brass Gears, Bicycle Lamps and Sundries, Tool Chests, Brass in sheet, bar and wire, and other fine grades of wares.

TROUT & SACKETT, 228 Lake street, have been appointed Chicago agents for the sale at factory prices of the fine mechanical Tools manufactured by L. S. Starrett, Athol, Mass.

AMERICAN WHIP COMPANY issue an invitation to the trade to call at their New York branch, 54 Warren street, where their World's Fair exhibit may be inspected. The company were awarded 14 medals and diplomas at the fair.

J. W. SHIPMAN & Co. have opened a new store at South Boston, Va. They will carry a general line of Hardware, Farming Implements, &c.

GEO. W. ROCKWELL, dealer in Hardware, Stoves, &c., Horseheads, N. Y., has admitted as partner in his business Chandler A. Hammond, a former clerk in his employ. The new firm will be known as Rockwell & Hammond.

FALLEY HARDWARE COMPANY and Jacob Patton, Lafayette, Ind., have consolidated their stocks of goods and business under the name of the Falley-Patton Hardware Company, who have been incorporated. The business will hereafter be conducted at 37 and 39 South Third street.

CHARLES T. HEALY has been appointed sole agent for the United States by Wilhelm Hasselbach of Solingen,

Germany, manufacturer of Pocket Knives, Scissors and Surgical Instruments. Mr. Hasselbach has recently built an addition to his factory, fitted up with all modern labor saving appliances in anticipation of the proposed reduction of the tariff. A large lot of samples is now on the way, comprising, we are advised, many patterns never before made by any Solingen manufacturer.

IN A CIRCULAR to the trade Cordley & Hayes, 172 Duane street, New York, call attention to new lines of Indurated Fibre Ware, which are included in their catalogue under date of February 15, 1894. These goods include Ice Water Buckets, with faucets; Chambers, more especially adapted for use in public institutions, and Fire Pails with flat and round bottoms. Reference is made to the fact that goods will be shipped promptly upon receipt of orders, and that their trade-mark and label appear on each article.

Price-Lists, Circulars, &c.

BRITTAN, GRAHAM & MATHES, Pittsburgh, Pa.: Wrought Steel Padlocks. A revised price-list and illustrated catalogue of 23 pages shows a large variety of Padlocks, malleable iron and flat Padlock Keys; also Tea Scales, Counter Scales, and sliding barn door Locks, reversible and self acting in closing the door. A price-list and description of Padlocks and Keys, numerically arranged, occupy the first two pages of the catalogue.

VAUGHAN & BUSHNELL MFG. COMPANY, 877 to 887 Carroll avenue, Chicago: Illustrated catalogue and price-list for 1894 of Hardware and Tools manufactured by the company. This is a well printed catalogue of 175 pages, handsomely bound in cloth and of a character to be kept in a permanent place on a merchant's shelves. The goods shown are all wrought iron or steel, and comprise Blacksmith's Tongs, a variety of Pincers and Nippers, Anvil fittings of all kinds, railroad track Tongs and Wrenches; small wrought goods, such as Nail Grips and Claws, Floor Hooks, Eye Bolts, Wrought Hasps, Ice Tongs, Clothes and Meat Hooks, Hitching Rings, Porters' Hooks, butchers' and packers' goods, Box Openers, Screw Driver Bits, Tinners' Tools, Post Hole Augers, &c. They are prepared to manufacture anything that can be worked in dies under a hammer.

SAML. KIDDER, 60 Federal street, Boston, Mass.: Belt Dressing. A pamphlet entitled "Belt Dressing Boiled Down," is devoted to a description of Juntar Dressing for leather, cotton and canvas, and the Grappa Dressing for rubber belting.

SWEATT MFG. COMPANY, Minneapolis, Minn.: Wheelbarrows. Catalogue No. 4 illustrates, with descriptions, an extensive variety of Wheelbarrows; also Factory Trucks, Hose Reels, Snow Shovels, Wagon Jacks, Saw Bucks, Mortar Hods, Brick Hods and Hubbard's patent Steel Wheel.

BUCK BROTHERS, Millbury, Mass.: Tools. A small catalogue illustrates, with prices, Chisels, Gouges, Plane Irons, Screw Driver Bits, Nail Sets, Reamers, Countersinks, Punches, Carving Chisels, &c. This catalogue, No. 7, embraces on four leaves nearly all the cuts shown in their complete catalogue of 120 pages and gives the prices of all the sizes made and some of the sets. The pamphlet is especially adapted for traveling men to carry about, and is also convenient for reference in the store.

ROBERT C. REEVES COMPANY, 185-187 Water street, New York. Agricult-

ural and Horticultural Implements, Machinery, Garden, Field and Flower Seeds, Fertilizers, &c. A catalogue is devoted to these goods, with illustrations, descriptions and prices.

SHOENBERGER & Co., Pittsburgh, Pa.: Special soft steel and iron extra swaged Horseshoes, Roadster Horseshoes, Mule Shoes and Steel Toe Calks. A catalogue is devoted to extra swaged Horseshoes, Juniata Mule Shoes, Juniata Roadster or Snow Shoes and Juniata Toe Calks. Illustrations are given of these goods, with comparative tables showing the weights of Iron and Steel Shoes of the same number. The manufacturers state that extra swaged Steel Shoes are made of a special quality of soft steel and will wear the same length of time as good iron; also that they make them lighter, thereby giving more Shoes to the keg.

WM. H. HASKELL COMPANY, Pawtucket, R. I.: Additional sheets for catalogue. These include new list prices for Cold Punched Check and Jam Nuts and Steel Set Screws; also Chain Links, which have been added to their line since the issue of their 1892 catalogue. The pages are designed to be inserted in the company's catalogue.

SICKELS, SWEET & LYON, 35 Barclay street and 40 Park place, New York: Hardware, Cutlery, Farm and Garden Tools. Their catalogue No. 7, spring edition 1894, is not intended to represent their full line, but is issued more especially to call attention to seasonable goods, their specialties and lines for which they are New York agents. Among the goods listed and illustrated are Scythes, Scythe Stones, Grass Hooks, Agricultural Hand Implements, Well Buckets, Window and Door Screens, Wringers, Hair Curlers, Sash Locks, Hammers and Sledges, Currycombs, Coffee Mills, Axes, Hatchets, Clippers, Revolvers, Fence Wire, Padlocks, Traps, Lawn Mowers, Freezers, Hammers, Hedge and Grass Shears, Picture Hooks, Locks, Floral Tools, &c.

JOS. DIXON CRUCIBLE COMPANY, Jersey City, N. J.: "The History of a Lead Pencil." The pamphlet is devoted to illustrations and descriptive matter relating to the 500 varieties of Pencils manufactured by the company, whose production is upward of 30,000,000 Pencils a year. A picture is given of Joseph Dixon, also views of the mines and mills of the company at Ticonderoga, N. Y., their works and offices at Jersey City, and of rafting cedar logs to their mill in Florida.

It Is Reported—

That C. C. Schultz & Co. have succeeded the Hardware firm of Schultz, Gerber & Co., Bartlett, Ill.

That a certificate of incorporation has been issued to the Niswander Hardware Company, Parkersburg, W. Va. The authorized capital of the company is \$100,000.

That Gilbert & Son, Hardware merchants, of Indianola, Iowa, have sold out their stock to a new firm, the style of which will be H. F. Schrader & Co.

That E. A. Rea has sold his Hardware stock at Leroy, Iowa, to Samuel Easton.

That William Eidam has purchased C. W. Marquardt's Hardware store, at Scribner, Neb.

That Charles Woods has bought the Hardware stock of W. Kerns, Ney, Ohio.

That Schaub & Swarm's Hardware store, at St. Elmo, Ill., was recently robbed of \$250 worth of Cutlery.

That the Hardware establishment of Ketcham & Wilson, Plymouth, Ind., was destroyed by fire on the 4th inst. The building was a four-story brick structure. The loss is \$15,000, partially insured.

That L. H. Bissell has purchased the interest of Geo. E. Deming in the Hardware business of Hollinger & Deming, Chariton, Iowa.

That Newman & Kennedy's Hardware store, at Portland, Mich., was burglarized on the 31st ult.

That about \$100 worth of goods were secured by burglars from the store of Charles E. Wolf Hardware Company, Altoona, Pa., on the 2d inst.

That Carter & Graves' Hardware store, at Puncell, I. T., was damaged by fire on the 4th inst. to the extent of \$4000. The stock was partially insured.

That N. D. Johnson, dealer in Hardware, Lynn, Mass., has removed his stock to larger quarters, a change necessitated by his increasing business.

That Durkee & Son's Hardware store, at Grafton, Ohio, was entered by burglars on the 31st ult., who carried off a considerable quantity of the Cutlery stock.

That in a large fire at Montgomery, Mo., on the 6th inst., the Hardware store of Frank Sabourin was destroyed. Loss, \$8000; insurance \$6000.

That L. A. LeMieux has sold his interest in the Hardware business at Oconto, Wis., to his brother, E. A. LeMieux, who was his former partner. The transfer took place on February 1.

That the following officers were elected at the recent annual meeting of the stockholders of the Paddock-Hawley Iron Company, St. Louis, Mo.: Gaius Paddock, president; George E. Hawley, vice-president; Orville Paddock, superintendent; William M. Miller, treasurer, and C. T. Brace, secretary.

That L. B. Sullivan & Co. have succeeded Sullivan & Key in the Hardware business at Nevada, Mo.

That Peter Dethleffs has purchased the large Hardware and Implement store of Arney Bros. & Crawford, Manning, Iowa.

That J. K. Mawhorter's Hardware store, Ligonier, Ind., was destroyed by fire on the 4th inst.

That the Hardware store of W. H. Smith, Richland, Iowa, was burglarized recently.

That William Huxford will engage in the Hardware business at Madison, S. D.

That Jonas Miller of Alliance, Ohio, has purchased an interest in the Hardware business of F. V. B. Minnich, Goshen, Ind.

That S. C. Welch, Hardware dealer, at Millville, Minn., has sold out.

That H. O. Monson & Co. have gone out of the Hardware business at Wheaton, Minn.

That Frank I. Williams, dealer in implements, Bedford, Iowa, has sold out.

That Sharpnack, Ferguson & Co., dealers in Hardware, &c., Modale, Iowa, have disposed of their business.

That Moore & Pugh, Hardware merchants, Redwood Falls, Minn., have dissolved partnership.

That A. R. Silverdale & Co. have succeeded A. N. Bates in the implement business at Marietta, Minn.

That I. M. Lyman, Hardware dealer, Concord, Neb., has sold out.

That G. C. Crandeele, in the Hardware business at Overton, Neb., has sold out.

That Charles S. Clifford expects to open a new Hardware store at Dover, N. H., on March 1.

That Armstrong & Armstrong have succeeded J. W. Armstrong in the Hardware business at South Auburn, Neb.

That F. H. Hudson and W. H. Carr have entered the Hardware business at Florence, N. C. The firm style will be Hudson & Carr. They will carry on a wholesale and retail business.

That the Hardware store of M. Knecht, Omaha, Neb., was entered by burglars on the 31st ult. The safe was opened and \$125 in cash abstracted. About \$10 worth of Pocket Knives were also taken.

That J. L. Thomas has sold his interest in the Hardware firm of J. L. Thomas & Co., Red Oak, Iowa, to his son, William Thomas. The business will hereafter be conducted under the style of Thomas Bros.

That at the recent annual meeting of the Billings Hardware Company, Superior, Wis., the following officers were elected: P. M. Kendig, president; D. L. Billings, vice-president and treasurer, and L. J. Moss, secretary. The directors chosen for the ensuing year were P. M. Kendig, D. L. Billings, F. S. Billings, E. M. Miller and L. J. Moss. The business of the Billings Hardware Company and the Warehouse & Builders' Supply Company will be separated, having heretofore been under the same management. This change has been rendered necessary by the growing business of each concern. W. P. Cockey, the former president of the Billings Hardware Company, will manage the Warehouse & Builders' Supply Company, having given up all interest in the former concern. Messrs. Kendig and Billings have disposed of their interest in the Warehouse & Builders' Supply Company to Mr. Cockey.

That James Bastable, Hardware merchant, at Ada, Ohio, has sold a half interest in his store to Geo. Guyton.

Paints and Colors.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

White Lead.—It is understood that a truce has been patched up between corrodors who were latterly in very sharp competition and that prices have been fixed at 4¼¢ @ 4½¢ for Dry White Lead in large quantities. To that extent the market is better. Otherwise there has been no improvement, since buyers are very conservative in view of tariff uncertainties and the slow condition of their business. The market for Lead in Oil continues extremely tame. None but commonplace orders are coming forward, and these are filled readily at prices that have ruled for a month or six weeks past. Manufacturers of "quick-process" and mixed Leads are sellers at prices as low as any that have prevailed previously this year. Upon the whole the position of the market is uncertain, and not with signs of an undercurrent of weakness, whatever may be the situation on the surface.

Red Lead.—Orders from large buyers have been comparatively few, and for ordinary jobbing quantities the call has hardly equaled the average. No further changes in prices have taken place, but there is still an undertone of weakness, and the chances are

that desirable orders would be filled at prices as low as those that ruled a week or ten days ago. This applies alike to foreign and domestic brands.

Litharge.—The large consumers are placing fair orders, but all movement on their part seems to be unusually conservative, with low prices the rule. There is no improvement in the demand for the finer grades used in the Paint trade, but prices for this as well as for the poorer article are without improvement.

Zincs.—Up to the present time the market for domestic Oxide does not appear to be affected by the rumors of curtailment of supplies of crude material. Deliveries proceed smoothly and new orders are taken with little or no ceremony at old prices. The volume of new business is moderate. Oh foreign stock there is more or less irregularity in prices, but no radical change.

Colors, &c.—Prices for the leading lines of Dry Colors remain stationary. Second quality and "substitutes" are urged persistently, however, with more or less unfavorable effect upon the general market. Oil Colors are without radical change, pending the absence of radical movement in Dry Colors or in Oils. Ready Mixed Paints are moving in routine way only, and chiefly at about the list prices that were made at the beginning of the year.

Oils and Turpentine.

Linseed Oil.—The market has shown hardening tendency, and evidence is not wanting that both "combine" and "independent" crushers have joined hands, temporarily at least, with a view to getting the best prices possible on spring season orders. It is understood that Western crushers are disinclined to take round orders at less than 50¢, and that their price for spring season delivery is virtually at this point at the present time. City crushers report little or nothing outside of routine orders, but state that the market is firm from every point of view.

Cotton Seed Oils.—Prime quality has been sold at as low as 28¢ on the spot, or the lowest price of the season, and it is stated that quite a large quantity was sold at a price relatively as low for direct shipment from the producing point to the West. Refined Oil went very cheaply in Europe, where consigned lots had an unfavorable bearing, and the local market suffered in some degree. Thus prime Summer Yellow went at as low as 33¢, and other grades quite as cheaply. Purchases at the prices named were extremely difficult to duplicate at the close. Further than this, however, there were no signs of improvement.

Lard Oil.—Quite free offering at the lowest prices touched last week has constituted the most prominent feature of the market. Next to that was extreme indifference on the part of buyers. In other words, the market has been extremely tame, with prices leaning more or less in buyers' favor, not only for prime Oil but for the lower grades.

Fish Oils.—Hardly any business has transpired in crude Menhaden, Sperm or Whale Oils, and nothing new has developed calculated to change the complexion of affairs. The movement of the Pressed and Bleached products has not involved anything outside of ordinary jobbing quantities, and on business of this character old prices have been the rule. Cod Oils are unchanged in value and moving slowly.

Spirits Turpentine.—There has been freer offering and prices have receded somewhat under the influence of the same and abatement in the demand. It is an easy matter to buy round lots, early delivery, at 32½¢ for regular and 33¢ for machine barrels.

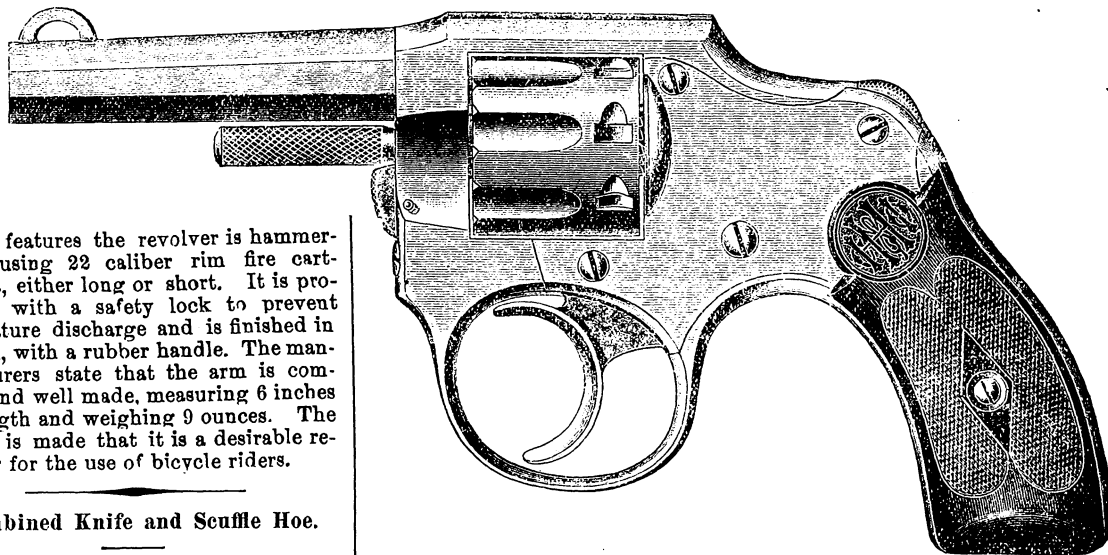
Hammerless Revolver.

The accompanying cut represents a 22 caliber rim fire revolver, put on the market by Maltby, Henley & Co., 20 Warren street, New York. Among

tool is exceptionally well made, and in case of breakage parts may be obtained and replaced by the user. The hoe is designed for edging up walks and borders. The manufacturer explains that the tool is expressly adapted for cutting turf and for cleaning walks from weeds,

Hartz Steel Hay Fork Block.

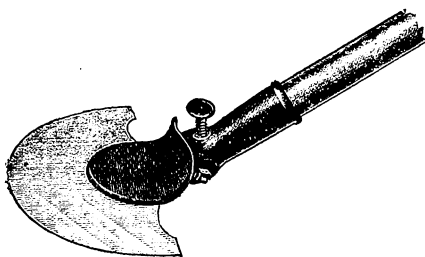
H. D. Edwards & Co., Detroit, Mich., are putting a steel hay fork block on the market, as herewith illustrated. It is composed of a steel shell, with a

*Hammerless Revolver.*

other features the revolver is hammerless, using 22 caliber rim fire cartridges, either long or short. It is provided with a safety lock to prevent premature discharge and is finished in nickel, with a rubber handle. The manufacturers state that the arm is compact and well made, measuring 6 inches in length and weighing 9 ounces. The point is made that it is a desirable revolver for the use of bicycle riders.

Combined Knife and Scuffle Hoe.

C. C. Beeman, 302 Railroad avenue, Bridgeport, Conn., is putting on the market the combination border knife and scuffle hoe herewith illustrated.

*Combined Border Knife and Scuffle Hoe.*

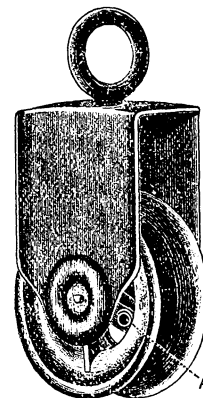
The blade of the hoe is of heavy steel, beveled only on the top, presenting a flat surface to the ground. The blade is 9 inches long by $4\frac{1}{2}$ inches deep, securely riveted to the malleable cap. The handle socket of malleable iron is held to the cap by a heavy bolt, the

working in gardens, around shrubbery and flower beds, the combination permitting instant change from edger to scuffle hoe, thus saving much time and trouble running after tools. The point is made that for farm use the tool is superior to the common hoe or the common scuffle hoe on account of the rounded shape of the blade.

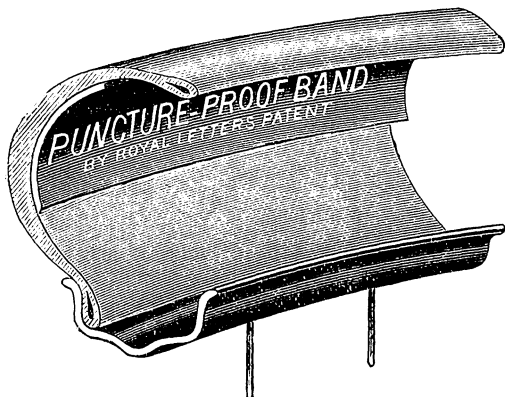
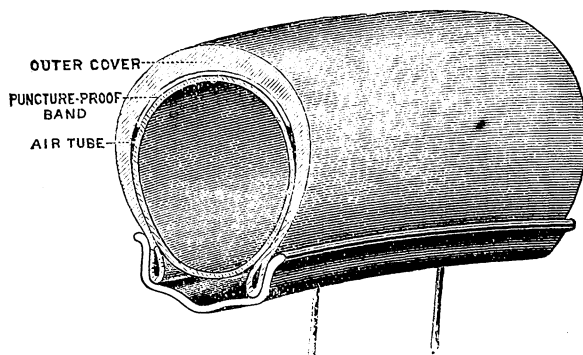
Puncture Proof Band.

Quadrant Cycle Company, 249 Columbus avenue, Boston, as sole agents for the United States, are offering the puncture proof band for bicycles, as shown in the accompanying cuts. The width of the band is shown in Fig. 1, and its position in relation to other parts of the tire in Fig. 2. Testimonials indicate that cycles fitted with the bands have been severely tested by riding with tacks $\frac{1}{4}$ -inch long driven in the tire, with no sign of deflation. The

wrought iron swivel ring and an iron sheave, $4\frac{1}{2}$ inches in diameter, $1\frac{1}{2}$ inches

*Hartz Steel Hay Fork Block.*

wide. The mortise in the sheave is $1\frac{1}{2}$ inches, with ample head room above the

*Fig. 1.—Puncture Proof Band.**Fig. 2.—Showing Position of the Band.*

socket being hollow clear through to permit of knocking out the handle, if desired. The hoe is provided with a good 5-foot ash handle, of suitable size, which is secured in the socket by a screw, leaving the handle solid and not weakened by boring. The blade can be adjusted to different angles and is held in position by the thumb screw. The

manufacturers claim that the bands are safe, resilient, fast and easily fitted to any detachable tire.

The Pittsburgh Locomotive Works of Pittsburgh recently shipped the last seven engines of a total order of 20 to the Manhattan Elevated Railroad Company of New York City.

sheave. The edges of the shell are upset and turned out to prevent wear on the rope. The letter A indicates a chamber in the sheave, which can be filled with tallow or oil and then corked up. The lubricant, it is explained, feeds on to the solid pin or axle, no matter in what position the block is worked. The company advise us that samples of the

block were tested to 2200 pounds without their giving at any point, and as this showed more strength than was necessary the tests were not carried further.

Steel Wire Pipe Hooks.

The cuts here shown illustrate steel wire pipe hooks and methods of using them, as offered by John W. Bell &

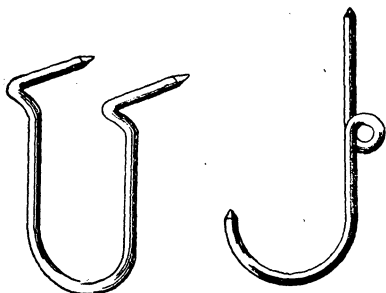


Fig. 1.—Steel Wire Pipe Hooks.

Co., Mercer, Pa. In Fig. 1 the two styles are shown—staple and open hooks. It is stated that the hooks are made of a superior quality of steel wire, tough yet stiff, and that they can be

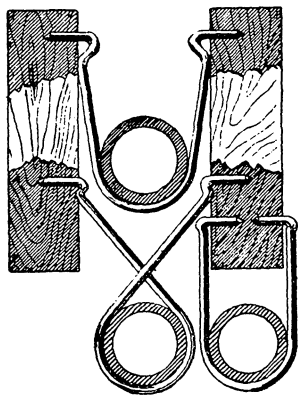


Fig. 2.—Methods of Using Hooks.

driven into any material into which a wire nail would drive. It is explained that the hooks are neat and strong, and that they can be used in many ways which will be suggested to the practical workman by the peculiar circumstances of each particular case. The

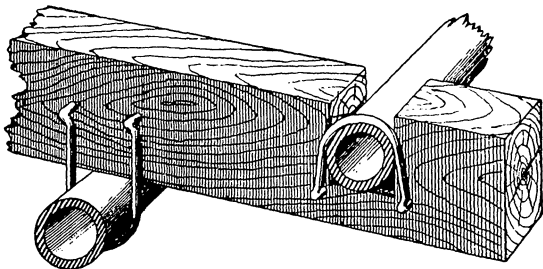


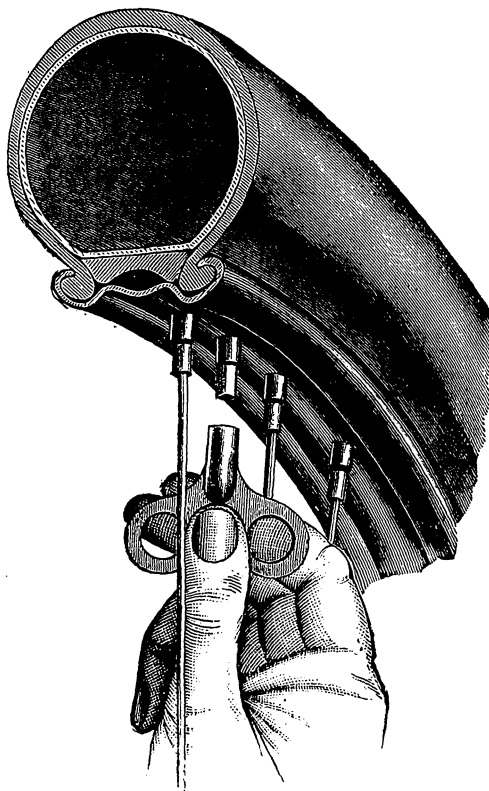
Fig. 3.—Methods of Using Hooks.

hooks are designed for fastening gas, water, steam and soil pipe, and are made to suit pipe from $\frac{1}{4}$ -inch to 8 inches, and of various lengths, the size of wire used varying according to the size of the hook.

of gas are supplied on the insertion of a coin in the meter, is being introduced in New York City by the Consolidated Gas Company. The plan has already achieved success in England, where it has been in use during the past year.

New York Key Tire.

The key tire represented by the accompanying cut is being introduced by the New York Belting & Packing Company, 15 Park row, New York. The



New York Key Tire.

rim is of special construction, with rolled edges, into which the beaded edges of the outer shoe fit. A strip of wood, which is tightened or loosened by the turn of a key operating a double eccentric, fits snugly in the center of the rim. It is explained that when the key is turned the tightening of the strip locks the beaded edges of the cover into the rim so closely that no reasonable pressure can displace them. It is stated that this prevents any creeping or rolling, and, as the entire circumference of the inner tube is above the rim, the whole of the tube is available for cushioning purposes. The manufacturers claim that the tire is resilient, light and easily repaired.

A system of coin-in-the-slot gas meters, by which a stated number of feet

Improved Marion Harland Coffee Pot.

Silver & Co., 304-310 Hewes street, Brooklyn, and 20 Warren street, New York, are introducing a glass sight



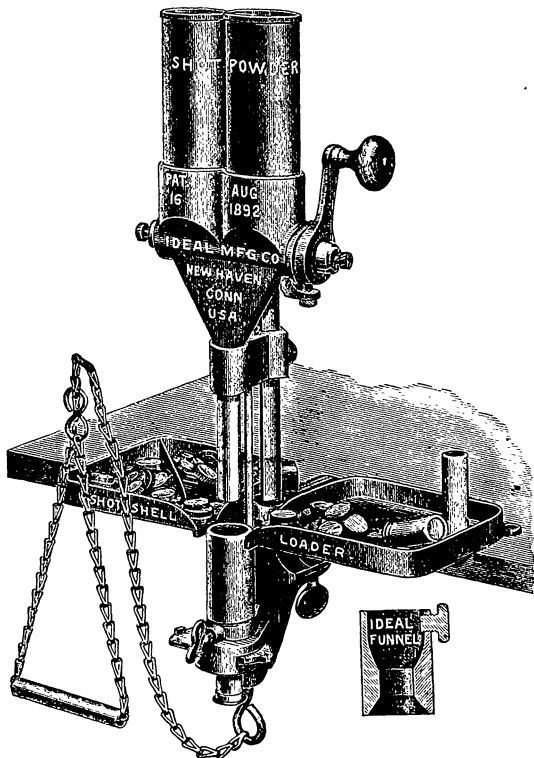
Improved Marion Harland Coffee Pot.

ranged as to be easily replaced if broken. The pots are made with copper bodies, tinned inside and nickel plated outside, provided with Britannia handles. The pots are made in 1, 2, 3 and 4 quart sizes; also in the same sizes without sight indicators.

Ideal Shot Shell Loading Machine.

The Ideal Mfg. Company, New Haven, Conn., are introducing a loading machine for shot shells, as illus-

wood. The metal part is galvanized, making it attractive and rust proof. The manufacturers claim that the basket remains sweet and clean, as nothing can penetrate into it, that it cannot wear out and that it cannot break. It is de-



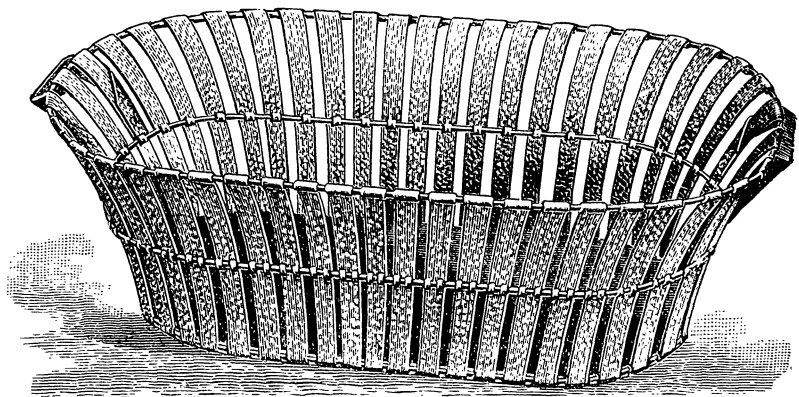
Ideal Shot Shell Loading Machine.

trated herewith. The loader is supplied with powder and shot reservoirs situated above the measuring device, and is provided with a cut off stop. It is explained that when the point or stop is reached where the shot is thrown out of the measure into the shell the opening of the measure for powder at that time is under and in connection with the powder in the reservoir and is filled accurately. The powder and shot are deposited into the shell in a direct straight line through the center of the wad plunger, thus depositing the powder and shot evenly, not packed high on one side of the shell and low on the other, leaving an uneven surface for the wads to rest upon. It is claimed that the measure will operate equally well with all of the various powders now made, measuring accurately from 10 grains up to 140 grains, and from $\frac{1}{4}$ dram to 5 drams; also that the two methods of measuring grains and drams can both be read at the same time and one prove the other, thus $2\frac{1}{4}$ drams equals 75 grains, &c. A foot power takes the place of a lever, allowing the operator to use both hands to manipulate the shells and wads. The machine will be made to load 10, 12, 14, and 16 gauge, requiring only a change of shell receiver and wad plunger. A complement of plungers for these four sizes goes with each machine, but only one shell receiver of the particular gauge specified when ordered. The machines are black japan finished, weighing, complete ready for use, 12 pounds.

Century Steel Basket.

The accompanying cut represents a steel basket being introduced by the Buffalo Specialty Mfg. Company, Buffalo, N. Y. The basket is all steel, excepting the bottom, which is hard

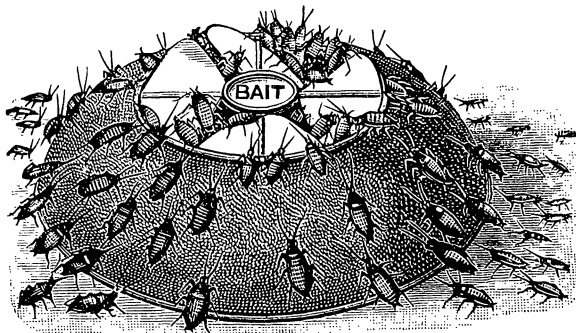
signed as a handsome, strong, attractive and light display and delivery



Century Steel Basket.

basket for grocers, butchers, bakers and merchants generally. The baskets are made in three sizes: No. 1, 21 inches

long, 13 inches wide and 7 $\frac{1}{4}$ inches deep; No. 2, 23 inches long, 14 inches wide, 7 $\frac{1}{4}$ inches deep, and No. 3, 25



Yankee Roach and Beetle Trap.

from 4 to 16 folds. Four of the sizes are made extra flexible for measuring curved or bent objects if desired.

inches long, 15 inches wide, 7 $\frac{1}{4}$ inches deep. The dimensions given are top measurements.

Yankee Roach and Beetle Trap.

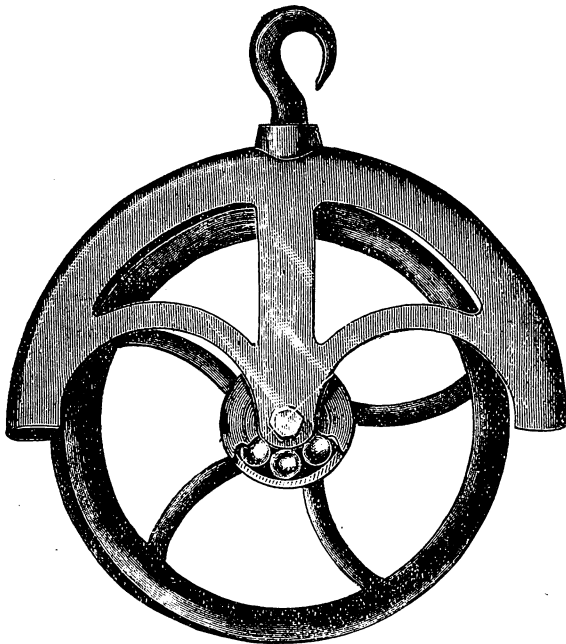
The accompanying cut represents a roach and beetle trap, offered by Silver & Co., 304-310 Hewes street, Brooklyn, and 20 Warren street, New York. The trap is made of tin, with a granulated surface, 8 inches in diameter and 3 inches high. At the top of the trap are sensitive revolving plates which turn with the weight of the bug when trying to reach the bait at the center. The trap is entirely of metal, and it is stated that it is always ready for use and easily emptied.

Improved Boxwood Folding Rule.

Keuffel & Esser Company, 127 Fulton street, New York, are manufacturing an improved boxwood folding pocket rule, so arranged at the joints that when opened the sections are aligned throughout instead of zig-zagging, as has been the difficulty heretofore. This, of course, shortened the measurement and impaired the correctness of it, unless extreme care was used to keep the line straight. This is effected by mounting the inner sides at the joints with strips of thin spring sheet steel, in which are punched straight ridges which articulate with corresponding indentations on the opposite piece when the rule is either open or closed. Especial attention is called by the makers to the fact that they are thinner and lighter than the ordinary joint rule and extremely accurate from the reason that the wood is pecul-

Ball Bearing Well Wheel.

The cut shown herewith represents a ball bearing anti-friction hoisting or well wheel pulley, offered by T. F. Cheriton Hardware Company, 62 Reade street, New York. The manufacturers



Ball Bearing Well Wheel.

claim that the ball bearing principle thus applied to well wheels results in a perfect anti-friction pulley which runs easily, does not get out of order, does not wear out and which requires less labor in use. The wheels are made in 10 and 12 inch sizes, japanned.

Lape's Scissors Sharpener.

In Fig. 1 is shown a full sized cut of a scissors sharpener introduced by W. E. Lape, Syracuse, N. Y. It is made of

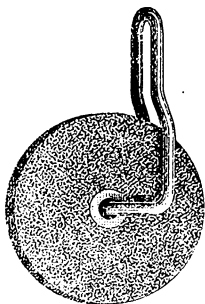


Fig. 1.—Lape's Scissors Sharpener.

emery, and, it is remarked, will never wear out. The wire is designed as a gauge to retain the beveled edge on the scissors when in use, as in Fig. 2. The

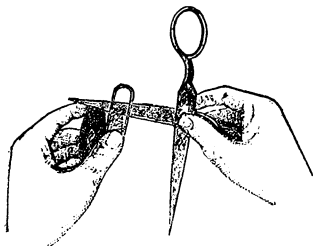


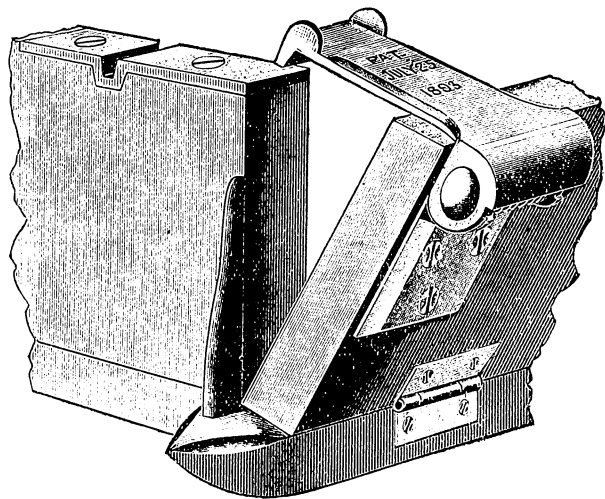
Fig. 2.—Scissors Sharpener in Use.

flat side of the blade is placed against the wire and the blade moved back and forth under firm pressure, both on the wire and wheel.

The Havens Improved End Gate Lock.

Fred. D. Glazier, Hartford, Conn., is introducing a tail board catch for wagons, as shown in the accompanying cut. The lock is attached to the end

gate, which when closed is held shut by a heavy coil spring, pressing the lock into the keeper. The illustration represents the end gate in the act of being closed. The manufacturer claims that the lock is easily applied to a wagon, that it holds the tailboard firmly in place, that it is easily unlocked, that it drops down with the tailboard, leaving the end of the wagon free and clear, and



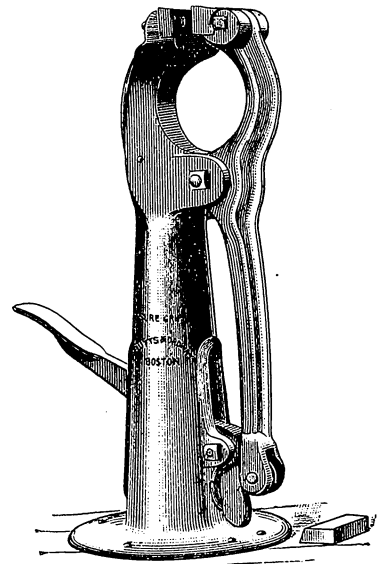
The Havens Improved End Gate Lock.

that it is neat and effective. The lock is designed to retail at 50 cents per pair.

B. & O. Sure Grip Foot Vise.

Butts & Ordway, 500 Atlantic avenue, Boston, Mass., have recently made an important change in the construction of their Sure Grip foot vise, the improved design being shown in the accompanying cut. The principal change is the shortening of the foot lever and the removal of the pinion wheel from the lever to the movable arm of the

vise. This, it is explained, gives more power and a quicker motion, and does away with the hitherto awkward projection of the lever joint. The lever end is bent at the power joint, and the action of the vise is accomplished by a



B. & O. Sure Grip Foot Vise.

cam movement. It is stated that the whole arrangement makes a better working and a more complete tool, which is sold at the former price.

Representative Stone of Pennsylvania has introduced in the House a bill calling for the inspection of immigrants at foreign ports before their embarkation for the United States, in order to obviate the trouble and expense of returning to their own countries such as prove un-

suitable. The plan proposed, which provides for the inspection of all immigrants by the United States Consul and the award of certificates to those entitled to admission under the laws, has received the approval of the House Committee on Judiciary.

James O. Handy, chemist of the Pittsburgh Testing Laboratory, has read a paper before the Engineers' Society of Western Pennsylvania on the exact determination of phosphorus by a molybdate method in iron, steel and ores which contain arsenic.

Current Hardware Prices.

FEBRUARY 21, 1894.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers at the figures named.

The character @ is used to indicate a range of price; thus discount 50&10@50&10&5 % signifies that the goods in question are sold at prices ranging from discount 50 and 10 % to discount 50 and 10 and 5 %.

Adjusters, Blind—

Domestic.....\$ doz \$2.00, 39¢@33¢&10¢
Excelsior.....\$ doz \$10.00.....50&10&2¢
North's.....\$ doz.....list net @ 10¢
Zimmerman's—See Fasteners Blind.

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils—

American—
Eagle Anvils, 4 to 92.....16@15&5¢
Horse shoe brand, Wrought.....11@11¢
Moore & Barnes Mfg. Co.....33¢

Imported—

Armature Mouse Hole.....10¢@11¢
S. & H. machine finished.....10¢@11¢
Trenton.....10¢@10¢
Wilkinson's.....10¢@11¢
Peter Wright's.....11¢@11¢

Anvil Vise and Drill—

Allen Anvil and Vise \$3.00.....40¢@10¢
Cheney Anvil and Vise.....25¢
Millers Falls Co., \$18.00.....20¢
Star.....45¢

Apple Parers—See Parers Apple, &c.

Augers and Bits—

Boring Machine Augers.....70¢@70¢&10¢
Car Bits, 12-in. twist.....30¢@10¢
Common Augers and Bits.....70¢@70¢&10¢
Cincinnati Bell-Hangers' Bits.....30¢@10¢
Forster Pat. Auger Bits.....15¢
Jennings' Pattern Car Bits.....40¢
Jennings' Pattern Auger Bits.....60¢
C. E. Jennings & Co., No. 10, extension
lip.....40¢
C. E. Jennings & Co., No. 30.....60¢
C. E. Jennings & Co., Auger Bits, 1/2 set
3 1/2" quarters, No. 5, 35; No. 30, \$3.50, 25¢
Russell Jennings' Augers and Bits, 25¢@10¢
Lewis' Patent Single twist.....45¢
L'Hommedieu's Augers and Bits.....15¢@10¢
Pugh's Black.....20¢
Snell's Jennings Pattern.....30¢
Snell's Bits.....60¢&5¢

Bit Stock Drills—

Cleveland.....50¢@10¢&5¢
Cincinnati, for wood.....30¢@10¢
Cincinnati, for metal.....45¢@10¢
Morse twist Drills.....50¢@10¢&5¢
New Process Twist Drill Co.....50¢@10¢&5¢
Standard.....50¢@10¢&5¢
Syracuse, for metal.....50¢@10¢
Syracuse, for wood (wood list), 30¢@80¢&5¢

Expansive Bits—

Clark's small, 1 1/8" large, \$26.35@85¢&10¢
Ives' No. 4, 1/2 doz. \$80.....40¢
Steers' No. 1, 28; No. 2, \$18.....35¢@40¢
Stearns' No. 2, \$48.....20¢
Swan's.....40¢

Gimlet Bits—

Bee.....25¢@25¢&5¢
Common.....\$ gross \$2.75@3.25
Diamond.....\$ doz \$1.25.....40¢@10¢
Double Cut:
Ct. Valley Mfg. Co.....30¢@10¢
Hartwell's.....\$ gro, \$10.00.....40¢@10¢
Douglass'.....40¢@10¢
Tees.....60¢@60¢&10¢
Shepardson's.....45¢@45¢&10¢

Hollow Augers—

Bonney's Adjustable, 1/2 doz \$48.....50¢
Cincinnati Adjustable.....25¢@10¢
Cincinnati Standard.....25¢@10¢
Douglass'.....33¢@33¢&10¢
French, Swift & Co. (Beecher).....33¢@33¢&10¢
Ives'.....33¢@33¢&10¢
Ives' Expansive, each \$4.50.....50¢&5¢
Stearns'.....20¢@10¢
Universal Expansive, each \$4.50.....20¢
Wood's.....25¢@25¢&10¢

Ship Augers and Bits—

L'Hommedieu's.....15¢@10¢&15¢&10¢&5¢
Snell's.....25¢@25¢&10¢
Snell's Ship Auger Pattern Car Bits.....15¢@10¢&15¢&10¢&5¢
Watrous'.....25¢@25¢&10¢

Awl Hafts—See Hafts, Awl.

Awls—

Awls, Sewing, Common.....\$ gr. 85¢@90¢
Awls, Should, Peg.....\$ gr. \$1.50@1.55
Awls, Pat. Peg.....\$ gr. 85¢@88¢
Awls, Shouldered Brad.....\$ gr. \$1.30@1.40
Awls, Handled Brad.....\$ gr. \$2.50@3.00
Awls, Handled Scratch.....\$ gr. \$4.00@4.50
Awls Socket Scratch.....\$ doz. \$1.10@1.20

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

First quality, best brands, \$7.00.....\$7.50
First qual., other brands.....6.50
Second quality.....5.50 6.00

Axle Grease—See Grease, Axle.

Axles—

No. 1.....3 1/4¢@4¢: 1 1/2¢@5¢
Nos. 7 to 14.....70¢
Nos. 15 to 28.....47¢
Nos. 19 to 22.....70¢
Concord Axles, loose collar.....3¢ cash
Concord Axles, solid collar.....4 1/2¢@6¢
5¢@6¢

Bag Holders—See Holders, Bag.

Balances—

Sash—
Pullman.....33 1/4¢
Spring—
Spring Balances.....No. 2000 20 30
Chatillon, \$ doz.....\$0.80 0.95 1.75 net
Chatillon Straight Balances.....40¢
Chatillon Circular Balances.....50¢@10¢

Barb Wire—See Wire, Barb.

Bars—

Crow—
Cast Steel.....\$ doz 3 1/2¢
Iron, Steel Points.....\$ doz 3 1/2¢

Basins, Wash—

Standard Fiberware, No. 1, 10 1/2-in., \$1.80;
12-inch, \$2.00; 13 1/2-inch, \$2.60; 15-inch,
\$3.00.

Beams, Scale—

Scale Beams, List Jan. 12, '82, 50¢@10¢
Iron, Steel Points.....50¢@10¢&5¢
Chatillon's No. 1.....40¢
Chatillon's No. 2.....50¢
Custer's.....33 1/4¢

Beaters—

Egg—
Bryant's.....\$ gross \$14.0
Double (H. & R. Mfg. Co.), \$ gro, No. 0 0
\$12.00; No. 1, \$15.00; No. 2.....\$30.00
Dover.....\$ doz \$1.00@1.20
Dover (Standard Co.).....\$ doz \$1.00
Duplex (Standard Co.).....\$ doz \$1.00
Duplex Extra Heavy (Standard Co.).....\$ doz \$3.50
Easy (H. & R. Mfg. Co.).....\$ gro \$12.00
Improved Ace (H. & R. Mfg. Co.).....\$ gro \$9.00
Silver & Co.....\$ doz \$5.50
Spiral.....\$ gro \$4.25@4.50
Triple (H. & R. Mfg. Co.).....\$ gro \$16.50

Culinary—

Keystone, P. D. & Co., Each, No. 1, \$1;
No. 2, \$2.....20¢

Bells—

Cow—
Common Wrought.....80¢@10¢
Kentucky Durham.....70¢@10¢
Kentucky, Sargent's list.....70¢@10¢
Kentucky, "Star".....20¢@10¢
Texas Star.....50¢@10¢&5¢
Western, Sargent's list.....70¢@10¢

Door—

Crank, Brooks'.....50¢@10¢&2¢
Crank, Cone's.....10¢
Crank, Connel's.....30¢@10¢
Gong, Abbe's.....33¢@10¢
Gong, Barton's.....40¢@10¢&5¢
Gong, Yankee.....45¢@10¢
Lever, R. & E. Mfg. Co.'s.....50¢@10¢&2¢
Lever, Sargent's.....60¢@10¢
Lever, Taylor's Bronzed or Plated.....net
Lever, Taylor's Janned.....25¢@10¢
Pull, Brook's.....50¢@10¢&2¢

Electric—

Bigelow & Dowse.....20¢
Wollensak's.....20¢

Hand—

Extra Heavy Brass.....70¢
Light Brass.....70¢@10¢&5¢
Silver China.....33¢@10¢
White.....70¢
Globe Cone's Patent.....25¢@10¢&35¢

Miscellaneous—

Call.....45¢@50¢
Farm Bells.....\$ doz \$3.50
Steel Alloy Church and School Bells.....40¢

Bellows—

Blacksmiths'.....60¢@10¢&5¢@60¢@10¢&10¢
Hand Bellows.....40¢@10¢&5¢
Molders'.....40¢@10¢&5¢

Belting, Rubber—

Common Standard.....75¢@75¢&10¢
Extra.....60¢@10¢&60¢@10¢&10¢
Standard.....70¢&5¢@70¢@10¢
N.Y.B. & P. Co., Carbon.....60¢@80¢&5¢
N.Y.B. & P. Co., Diamond.....50¢@60¢&5¢
N.Y.B. & P. Co., Para.....40¢@40¢&5¢

Bench Stops—See Stops, Bench

Benders and Upsetters, Tire—

Detroit Perfected Tire Bender.....15¢
Green River Tire Benders and Upsetters.....20¢
Stoddard's Lightning Tire Upsetters.....15¢

Bits—

Auger, Gimlet, Bit Stock Drills, &c.,
see Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—

Cleveland Block Co., Mal. Iron 5 1/2" @ 26¢;
Moore's Novelty, Mal. Iron.....50¢
Sure Grip Steel Tackle Blocks.....25¢
See also Machines, Hoisting.

Bolts—

Carriage, Machine, &c.—

Com. list June 10, '84.....80¢@10¢
Genuine Eagle, Norway, list Oct. '84.....80¢@10¢
Eagle, Norway, list Oct. '84.....80¢@10¢
Phila. pattern, list Oct. 7, '84.....80¢
R.B. & W., old list.....70¢
Bolt Ends, list Jan. 1, 1890, 80¢@10¢&20¢
Machine, list Jan. 1, 1890.....80¢@10¢&20¢

Door and Shutter—

Cast Iron Barrel, Square, &c.....70¢@10¢
Cast Iron Chain (Sargent's list).....65¢@10¢
Cast Iron Shutter Bolts.....70¢@10¢
Ives' Patent Door Bolts.....60¢@10¢&10¢&5¢
Wrought Barrel.....70¢@10¢&75¢
W.R. & K. Flush, Common.....55¢@10¢
W.R. Shutter, Brass Knob.....50¢@10¢
W.R. Shutter, Sargent's list.....60¢@10¢
W.R. Shutter, all iron, Stanley's.....60¢@10¢&60¢@10¢&10¢
Wrought Square.....70¢@10¢&75¢
W.R. Sunk Flush, Sargent's list.....80¢@10¢
W.R. Sunk Flush, Stanley's list.....60¢@10¢&5¢

Stove and Plow—

Plow.....60¢@10¢&5¢@60¢@10¢&10¢
Stove.....60¢@10¢&60¢@10¢&10¢
R. B. & W., Plow.....55¢

Tire—

Common, list Feb. 28, '83.....65¢@65¢&5¢
American Screw Company
Norway, Phila., list Oct. 16, '84.....75¢
Eagle, Phila., list Oct. 16, '84.....80¢
Phila., list Oct. 16, '84.....80¢
Bay State, list Feb. 28, '83.....65¢
Port Chester Bolt and Nut Company
Empire list Feb. 28, '83.....65¢
Keystone, Philadel., list Oct. '84.....80¢
Norway, Phila., list Oct. '84.....75¢
R. B. & W., Philadel., list Oct. 16, '84.....80¢

Borers, Tap—

Common and Ring.....20¢@10¢
Clark's.....33¢@35¢
Enterprise Mfg. Co.....20¢
Ives' Tap Borers.....33¢@35¢

Boring Machines—See Machines, Boring.

Bow Pins—See Pins, Bow.

Boxes, Wagon—

Per b.....2 1/4¢

Boxes, Miter.

Spiker's Excelsior, 3 in. \$7.50, 4 in.
\$8.50, 5 in. \$13.00, 6 in. \$15.00.....20¢

Braces—

American Bit Brace and Tool Co.
Nos. 10, 12, 20.....60¢@10¢
Nos. 11, 21, 24, 27.....70¢@10¢
Nos. 22, 23, 25.....60¢@10¢&5¢
Nos. 13, 26, 36, 37.....70¢@10¢&5¢
Amidon's
Barker's Imp'd Plain.....75¢@10¢&80¢
Barker's Imp. Nickeled.....65¢@10¢
Ratchet.....75¢@10¢&80¢
Eclipse Ratchet.....80¢
Globe Jawed.....40¢@40¢&10¢
Corner Brace.....40¢@40¢&10¢
Universal, 8 in., \$2.10; 10 in. \$2.25
Buffalo Ball.....\$1.10@1.15
Bartholomew's.....60¢@10¢
Nos. 25, 27 and 30.....50¢@10¢&60¢&5¢
Nos. 117, 118, 119.....70¢@70¢&5¢
Common Ball, American.....\$1.00@1.10
Davis Patent.....60¢@10¢
Fray's Genuine Spotted.....50¢@50¢&10¢
Fray's Nos. 70 to 120, \$1 to 128, 207 to 415
Ives' New Haven Novelty.....70¢@70¢&5¢
New Haven Ratchet.....60¢@50¢&10¢
Barber Ratchet.....60¢@50¢&10¢
Barber's.....60¢@50¢
P. S. & W. Co., Pat's Patent.....60¢
Ross & Johnson.....60¢
Saxton's
Barker's Imp. Polished.....75¢@10¢&80¢
Barker's Imp. Nickeled.....65¢@10¢&70¢
Ratchet, Polished.....50¢@10¢&60¢
Ratchet, Nickeled.....40¢@10¢&50¢
Buffalo Ball.....net, \$1.10@1.15

Brackets—

Shelf, fancy.....70¢@70¢&10¢
Sargent's list.....60¢@10¢&70¢@10¢
Bradley Shelf Brackets.....70¢@10¢
Shelf, plain.....65¢@70¢
Regular, list.....65¢@70¢
Sargent's list.....60¢@10¢&70¢@10¢
Bradley Shelf Brackets.....70¢@10¢

Bright Wire Goods—See Wire.

Hent's Self-Inch.....9 10 9x11
Basting, 1 Per doz.....\$4.50 5.50 6.50
Morgan Cordless.....\$ doz. \$12, 60¢
Navy.....50¢
Queen City.....33¢@50¢
Wire Goods Co.....65¢@10¢

Buckets, Well—

Galvanized—
Helwig's Flat Iron Band.....\$3.75
Helwig's Wined Top.....\$ doz \$4.00
Hill's.....\$ doz 12 qt. \$4.25; 14 qt. \$5.25
Iron Clad.....\$ doz 14 qt. \$4.25@4.50

Bull Rings—See Rings, Bull.

Butcher's Cleavers—See Cleavers, Butcher's.

Butts—

Brass—
Cast Brass, Fast.....33¢@10¢
Cast Brass, Loose Joint.....33¢@10¢
Cast Brass, Tiebout's.....50¢
Wrought Brass.....80¢@80¢&10¢

Cast Iron—

Fast Joint, Broad.....50¢@10¢&60¢
Fast Joint, Narrow.....50¢@10¢&5¢&60¢
Loose Joint.....75¢&5¢
Loose Joint, Japanned.....85¢
Loose Joint, Jap. with Acorns.....75¢&10¢
Loose Pin, Acorns, Japanned.....75¢&10¢
Loose Pin, Acorns, Japanned.....85¢
Loose Pin, Acorns, Japanned.....85¢
Plated Tips.....75¢&10¢
Mayer's Hinges.....75¢&10¢
Parliament Butts.....75¢&10¢

Wrought Steel—

Fast Joint, Broad.....75¢&10¢
Fast Joint, Narrow.....75¢&10¢
Fast Joint, Lt. Narrow.....75¢&10¢
Inside Blind, Light.....75¢&10¢
Inside Blind, Regular.....75¢&10¢
Loose Joint, Broad.....75¢&10¢
Loose Pin.....75¢&10¢
Table Butts, Back Flaps, &c.....75¢&10¢
Bronzed Wrought Butts.....50¢@50¢&10¢

Cages, Bird—

Hendryx, Brass.....10¢@50¢
Hendryx, Enameled.....40¢@10¢&50¢

Callipers—See Compasses.

Calks Toe—

Burke's, One Prong, Blunt.....5¢@6¢
Burke's, One Prong, Sharp.....6¢@7¢
Burke's, Two Prong, Blunt.....7¢@8¢
Gautier, One Prong, Blunt.....5¢@6¢

Can Openers—See Openers, Can.

Cans, Milk—

S. S. & Co.: 5-gal., \$3.00; 8-gal., \$4.40;
10-gal., \$4.75 each.....40¢@10¢

Cans, Oil—

Galvanized Blue Band, 1 gal., \$ doz. \$2.25
Galvanized Blue Band, 5 gal., Tip-Top,
\$ doz. \$12.00
Galvanized Blue Band, 5 gal., Faucet,
\$ doz. \$8.00
Glass Oil, Friend.....\$ doz. \$2.75

Caps—

Percussion—
Hicks & Goldmark's and Union Metallic
Cartridge Co.....\$ 1000
Eley's E. B.....50¢@58¢
Eley's D Waterproof, Central Fire, \$1.60
E. B. Grnd. Edge, Cent. Fire, 1-10.....47¢@50¢
E. B. Trimm'd Edge, 1-10's.....47¢@50¢
F. L. Waterproof, 1-10's.....35¢@37¢
G. D.....27¢@30¢
Musket, Waterproof, 1-10's.....50¢@58¢
S. B. Genuine Imported.....45¢

Primers—

Berdan Primers, \$1.00.....25¢
B. L. Caps (Sturtevant Shells) \$1.00.....25¢
All other Primers, \$1.20.....25¢

Cards—

Watson's Cotton, Wool, Horse and
File, list January 28, 1891.....25¢

Carpet Stretchers—

See Stretchers, Carpet.

Cartridges—

B. B. Caps, Con. Ball, Swgd., \$1.85@1.90
B. B. Caps, Round Ball.....\$1.60@1.65
Blank Cartridges, except 22 and 32 cal.,
additional 10% to above discounts.
Blank Cartridges, 22 cal., \$1.75.....25¢
Blank Cartridges, 32 cal., \$3.50.....25¢
Cent. Fire, Military and Sporting.....15¢&25¢
Cent. Fire, Pistol and Rifle.....25¢&25¢
Primed Shells and Bullets.....15¢&25¢
Rim Fire Cartridges.....15¢&25¢
Rim Fire Military.....15¢&25¢

Carpet Sweepers—

See Sweepers, Carpet.

Casters—

Bed Plate.....\$ Brass.....55¢@55¢&10¢
Plate.....Others.....60¢@60¢&10¢
Shallow Socket.....40¢@10¢
Deep Socket.....40¢@10¢
Giant Truck Casters.....35¢
Gwinner's Common Sense.....45¢
Gwinner's Hercules.....45¢
Martin's Patent (Phoenix).....45¢@10¢&10¢
Payson's Anti-Friction.....70¢@70¢&10¢
Payson's Truck.....60¢@60¢&10¢
Socket Truck Casters.....50¢@60¢&10¢
Stationary Truck Casters.....50¢@10¢
Tucker's Patent, low list.....45¢
Yale Casters, low list.....45¢
Yale, Gem.....70¢

Cattle Leaders—

See Leaders, Cattle.

Cement—

Victor Brand.....5 m pails \$ m

Chain—

American Coll. in case lots,
3-16 5-16 7-16 9-16 11-16 13-16
\$7.80 5.30 4.45 3.80 3.65 3.50 3.40 3.25
Less than case lots, add 1/4¢ per lb.
German Coll. list July 12, 1892 60¢@60¢&10¢
German Halter Chain, list July 12, 1892.....60¢@60¢&10¢

Trace, Wagon and

Chalk Lines—See Lines.**Checks, Door—**

Unity	50%
Chisels—	
Socket Framing and Firmer	
Mir.	
Ohio Tool Co.	75¢10¢75¢10¢10%
P. S. & W.	
Witherby	80%
Buck Bros.	75¢75¢25%
Dougllass	60¢10¢60¢10¢25%
Merrill	80¢30¢25%
L. & J. White	80¢30¢25%
Tanged and Miscellaneous.	
Buck Bros.	30%
Butchers	\$4.75 to \$5.00 to 2
Spears & Jacksons	\$5 to 2
Tanged Firmers	50¢55¢10
Cold Chisels, fair quality, 7 in.	14¢16¢
Chucks—	
Beach Pat.	each, \$8.00, 20%
Danbury	each, \$6.00, 30¢30¢25%
Graham Patent	33¢4%
Morse's Adjustable, each, 7 in.	20¢20¢25%
Syracuse, Bal. Pat.	25%
Skinner's Patent Chucks	
Combination Lathe Chucks	33¢4%
Drill Chucks	15%
Independent Lathe Chucks	40%
Universal Lathe Chucks	40%
Union Mfg. Co.	
Combination	40%
Independent	40%
Universal	40%
Victor	\$8.50, 25%

Churns—

McDermaid Star Barrel Churn, each	6 gal., \$2.60; 10 gal., \$2.75; 15 gal., \$3.00; 20 gal., \$3.25
Tiffin Union, each, 5 gal., \$3.25; 7 gal., \$3.75; 10 gal., \$4.25	

Clamps—

Adjustable, Cincinnati	15¢10%
Adjustable, Hammers	15¢15¢5%
Adjustable, Star	30¢30¢10%
Barnes' Machinists' Clamps	33¢4%
Cabinet, Sargent's	70¢10%
Carpenter's, Cincinnati	25¢10%
Carriage Makers', P. S. & W. Co.	40¢10%
Carriage Makers', Sargent's	75¢75¢5%
Eberhard Mfg. Co.	40¢5¢40¢10%
R. I. Tool Co.'s Wrought Iron	25%
Saw Clamps, see Vises, Saw Filers	
Stearns' Adjustable Cabinet and Corner	30¢30¢10%
Warner's	40¢10¢40¢10¢5%
Cleavers, Butchers—	
Beatty's	40¢40¢5%
Bradley's	25¢50%
Foster Bros.	30%
New Haven Edge Tool Co.'s	40%
Nichols Bros.	30%
P. S. & W.	33¢25¢33¢10%
Schulte, Lohoff & Co.	40¢40¢5%
L. & J. White	20¢5%

Cups—

Baker Axle Clips	25%
Norway, Axle, 4 & 5-16	55¢55¢5%
Norway Spring Bar Clips, 6-16	60¢55¢5%
24 grade Norway Axle, 4 & 5-16	55¢5%
Steel Felloe Clips	60¢5%
Superior Axle Clips	60¢5%
Wrought Iron Felloe Clips	60¢5%

Cloth and Netting, Wire—**Cockkeys—****Cocks Brass—**

Hardware List (Globe, Kerosene, Lever	
Bibbs, Racking, &c.)	60¢2¢60¢10

Coffee Mills—See Mills, Coffee.**Collars Dog—**

Brass, Pope & Stevens' list	40%
Chapman Mfg. Company, new list	40%
Embossed, Gilt, Pope & Stevens' list	30¢1%
Leather, Pope & Stevens' list	40%
Medford Fancy Goods Co.	40¢10¢50%

Combs Curry—

American Curry Comb Co.	33¢40%
Fitch's	60¢10¢60¢10¢10%
Gibb's Magnetic	¢ doz., \$2.00
Kohler's Humane	¢ doz., \$1.75
Kohler's Magic Oscillating	¢ doz., \$2.00
Rubber, per doz.	\$10.00, 25%

Compasses, Dividers &c—

Compasses, Calipers, Dividers, 70¢10¢75%	
Bemis & Call Co's	
Dividers	65%
Calipers, all's Patent Inside	55%
Calipers, Double and Drivers	65%
Calipers, Inside or Outside	65%
Calipers, Wing	60%
Compasses	60¢25%
Excelsior	50%
Starrett's	50%
Combination Dividers	25%
Lock Calipers and Drivers	25%
Spring Calipers and Dividers	25%
Stevens & Co.'s	25¢10%

Coolers, Water—

S. S. & Co.: 2 gal., \$2.00; 3 gal., \$2.50;	
4 gal., \$2.75; 6 gal., \$3.40 each	33¢4%

Coopers' Tools—**Cord—**

Braded, Crown Drab and Fancy, 7 in.	50%
Braded, Crown White, 7 in.	50%
Cable Laid Italian Sash	¢ 10¢20¢
Common	¢ 8¢9¢
Common Russia Sash	¢ 12¢18¢
Egyptian, India Hemp, Braded	28¢
India Cable Laid Sash	¢ 11¢12¢
Massachusetts, White	25%
Ossawaun Mill	
Braded, Giant, Drab and Fancy, 7 in.	35¢
Braded, Giant, White, 7 in.	30¢
Patent, good quality	¢ 10¢11¢
Patent Russia Sash	¢ 18¢14¢
Samsom	
Braded, Drab Cotton	¢ 4¢
Braded, Italian Hemp	¢ 4¢
Braded, Linen	¢ 6¢
Braded, White Cotton	¢ 7¢
Semper Idem, Braded, White	28¢
Silver Lake	
A quality, Drab, 55¢	25%
A quality, White, 50¢	25%
B quality, Drab, 35¢	10%
B quality, White, 30¢	10%
Sylvan Spring, Extra Braded, Drab	39¢
Sylvan Spring, Extra Braded, White	34¢
Tate's Solid Braded	
Economy, Drab	¢ 27¢
Economy, White	¢ 22¢
Hercules, Drab	¢ 25¢
Hercules, White	¢ 25¢
White Cotton Braded, fair	¢ 23¢24¢

Wire Picture—**Corkscrews—See Screws, Cork.****Corn Knives and Cutters—****Crackers, Nut—****Cradles—****Crayons—****Creamery Pails—See Pails, Creamery.****Crow Bars—See Bars, Crow.****Curry Combs—****Curtain Pins—****Cutters—****Meat—****Draw Cut, each:****Hale's, 7 in. doz.****Home No. 1, 7 in. doz.****Little Giant, 7 in. doz.****Miles' Challenge, 7 in. doz.****Triumph No. 505, 7 in. doz.****Woodruff's, 7 in. doz.****Chadborn's Smoked Beef Cutter, 7 in. doz.****Enterprise Beef Shavers, 7 in. doz.****Tucker & Dorsey Mfg. Co.: Kraut Cutters, 7 in. doz.****Slaw Cutters, 1 Knife, 7 in. doz.****Slaw Cutters, 2 Knife, 7 in. doz.****Tobacco****Acme****Champion****Nashua Lock Co.'s, 7 in. doz.****Sargent's, 7 in. doz.****Wilson's, 7 in. doz.****Washer—****Appleton's, 7 in. doz.****Bonney's, 7 in. doz.****Cincinnati, 7 in. doz.****Johnson's, 7 in. doz.****Penny's, 7 in. doz.****Smith's Pat., 7 in. doz.****Cronk's Post Bars, 7 in. doz.****Eureka Diggers, 7 in. doz.****Fletcher Post Hole Augers, 7 in. doz.****Gem, Improved, 7 in. doz.****Gibbs' Columbia, 7 in. doz.****Gibbs' Hustler, 7 in. doz.****Gibbs' Imperial, 7 in. doz.****Gibbs' National, 7 in. doz.****Gibbs' Post Hole Digger, 7 in. doz.****Kohler's Hercules, 7 in. doz.****Kohler's Invincible, 7 in. doz.****Kohler's Little Giant, 7 in. doz.****Kohler's New Champion, 7 in. doz.****Samson, 7 in. doz.****Scheldier, 7 in. doz.****Shimer's Hollow Handle, 7 in. doz.****Vaughan's Post Hole Auger, 7 in. doz.****Dividers—See Compasses.****Dog Collars—See Collars, Dog.****Door Checks—****Door Springs—****Drawers.****Waddell's Improved, No. 1, 7 in. doz.****Waddell's Improved, No. 2, 7 in. doz.****Waddell's Desk and Drawer, each \$7.50****Waddell's Desk and Show case, each \$7.50****Drawing Knives—****Drills and Drill Stocks—****Blacksmiths' Self-Feeding, each \$7.50, 20%****Nashua Lock Co.'s Tools, each \$1.75 to \$1.85****Breast, Bartholomew's, each \$2.00****Breast, Millers Falls, each \$3.00, 25%****Breast, P. S. & W., each \$3.00, 25%****Breast, Wilson's, each \$3.00, 25%****Chicopee Automatic Drill, each \$2.00, 25%****Ratchet, Curless & Curtis, each \$2.00, 25%****Ratchet, Ingersoll's, each \$2.00, 25%****Ratchet, Merrill's, each \$2.00, 25%****Ratchet, Moore's Triple Action, each \$2.00, 25%****Ratchet, Parker's, each \$2.00, 25%****Ratchet, Weston's, each \$2.00, 25%****Whitneys Hand Drill, Plain, each \$2.00, 25%****Adjustable, 12 in., each \$2.00, 25%****Twist Drills—****Cleveland, 50¢10¢10%****Diamond, V. & B., 50¢10¢10%****Graham's Pat. Groove Shank, 50¢10¢10%****Morse, 50¢10¢10%****Nashua Lock Co., 50¢10¢10%****Standard, 50¢10¢10%****Syracuse (Metal list), 50¢10%****Drill Bits or Bit Stock****Drills—See Augers and Bits.****Drill Chucks—See Chucks.****Dripping Pans—****Drivers, Screw—****Allard's Spiral, new list****Brace Screw Drivers****Buck Bros.****Clark Bros.' Screw Driver Bits****Clark's Pat.****Cincinnati****Disston's****Dougllass Mfg. Co.****Ellrich's Socket and Ratchet****Fray's Sol. T. die Sets, No. 3, \$12.00, 45%****Gay & Parsons****Goodell's Automatic****Knap & Cowles****No. 1, 60¢20¢70%****No. 2, 60¢10¢10¢70¢5%****No. 3, 60¢5¢60¢10%****Nos. 4 and 00, Acme and Ideal****Kolb's Common Sense, 7 in. doz., \$8.00, 25%****Mayhew's Black Handle****Mayhew's Monarch****Sargent & Co.****No. 1, Forged Blade****Nos. 20, 40 and 60****Screw Driver Bits, Parr's, 7 in. doz., \$8.25****Screw Driver Bits, 7 in. doz., \$6.75****Stanley R. & L. Co.'s****No. 64, Varnished Handles****No. 86****Stearns****Syracuse Screw Driver Bits****C. T. Williamson Wire Novelty Co.****Egg Beaters—See Beaters, Egg.****Egg Poachers—****See Poachers, Egg.****Electric Bell Sets—****See Bells, Electric.****Emery—No. 4 to No. 54 to Flour, CF****Kegs, 48 gr. 150 gr. F.F.F.****1/4 kegs, 48 gr. 5 5/8 3 1/2****1/4 kegs, 48 gr. 5 5/8 3 1/2****10-12 cans, 10****In case, 6 5/8 5 1/2****10-12 cans, less****than 10, 10 10 8 1/2****Enameled and Tinned****Ware—See Ware, Hollow****Escutcheon Pins—****See Pins, Escutcheon.****Escutcheons—****Brass Thread****Door Lock****Wood****Expanded Metal—****List No. 5.****Door Mats, Galvanized****Fencing, Painted Sheets****Lathing****Netting, Painted Sheets****Tr. Guards, Paneled****Window Guards, Paneled****Extractors, Lemon Juice—****See Squeezers, Lemon.****Fasteners, Blind—****Austin & Eddy No. 2008****MacKrell's, 7 in. doz. \$1.00, 25%****Security Gravity****Van Sand's Old Pat., \$15 gr. 55¢10%****Van Sand's Screw Pat., \$15 gr. 60¢10%****Zimmerman's****Faucets—****B. & L. B. Co.****West's Lock, Open and Shut Key****Burnside's Red Cedar****Cork Lined****Fenn's****Fenn's Cork Stops****Fray's Pat. Petroleum****Metallic Key, Leather Lined****John Sommers'****Peerless Best Block Tin Key****IXL, 1st quality, Cork Lined****Diamond Lock****Perfection, Fla. Red Cedar (in boxes) 40%**

Halters—
 Covert's Adj. Rope Halters.....40&25
 Covert's Adj. Web Halters.....35&25
 Covert's Hemp Horse and Cattle Tie.....50&10&25
 Covert's Jute Cattle Ties.....70&25
 Covert's Jute Horse Ties.....70&25
 Covert's Rope, 7-16-in. Jute.....70&25
 Covert's Rope, 1/2-in. Hemp.....50&25
 Covert's Rope, Jute.....60&10&25
 Covert's Saddlery Works Halters.....35&25
 Covert's Saddlery Works Handy Web Halters.....35&25
 Covert's Saddlery Works Horse and Cattle Ties.....35&25

Hammers—
Handled Hammers—
 Atha Tool Co.....50&10
 Buffalo Hammer.....50&10
 Humason & Beckley.....50&10
 Verree.....40&10
 Cheney's Claw.....40&10
 Cheney's Machinist's & Riveting.....40&10
 C. Hammond & Son.....40&10
 Magnetic Tack, Nos. 1, 2, 3, 1.25, 1.50 & 1.75.....30&10
 Maydole's, List Dec. 1, '85.....25&10&25
 Nelson Tool Works.....40&10
 Peck, Stow & Wilcox.....35&40
 Fayette R. Plumb.....40&10
 Artisans' Choice, A. E. Nail.....40&10
 Horseshoe Turning Hammers.....50
 Regular Y. & P. A. E. Nail.....50
 Other Hammers.....50&10
 Sargent's.....40&10
 Warner & Nobles, new list.....25&10

Heavy Hammers and Sledges—
 3 lb and under.....75&15
 5 lb.....85
 10 lb.....100
 Over 5 lb.....100
 Wilkinson's Smiths.....100

Handcuffs and Leg Irons—
 See Police Goods.

Handles—
Cross-Cut Saw Handles—
 Atkins', new list.....40
 Champion.....15
 Ely's Perfection.....40
 Sensible.....40

Iron, Wrought or Cast—
 Barn Door, # doz \$1.40.....10&10
 Bronze Iron Drop Latches.....70 net
 Chest and Lifting.....70&10
 Door or Thumb.....70&10
 Nos. 0 1 2 3 4
 Per doz.....\$0.90 1.00 1.08 1.35 1.50
 60&10&10
 Jap'd Store Door Handles—Nuts, \$1.62, Plate, \$1.10; no plate, \$0.88; doz 70 net
 Roggin's Latches.....70&10

Wood—
 Auger, assorted.....gr 5.00
 Auger, large.....gr 7.00
 File, assorted.....gr 2.75
 Brad Axl.....gr \$2.00
 Apple Firmer Chisel, ass'd.....gr 5.00
 Apple Firmer Chisel, large.....gr 6.00
 Hickory Firmer Chisel, ass'd.....gr 5.00
 Hickory Firmer Chisel, large.....gr 6.00
 Socket Firmer Chisel, ass'd.....gr 3.00
 Socket Framing Chisel, ass'd.....gr 5.00
 Hammer, Hatchet, Axe, &c.....40&25
 Hoe, Rake, Shovel, &c.....60&25
 Pat. Auger, Douglass.....set \$1.25
 Pat. Auger, Ives.....set \$1.00
 Pat. Auger, Swan.....set \$1.00
 Saw and Plane.....40&10
 J. B. Smith & Co.'s Pat. File.....60

Hangers—
 Barn Door, New England.....70&25
 Barn Door, old patterns.....70&25
 Barry.....50
 Best Anti-Friction.....60&10
 Boss.....60&10
 Carrier Steel Anti-Friction.....50&10
 Champion.....60&10
 Chicago Anti-Friction.....30&5
 Climax Anti-Friction.....55
 Cincinnati Nos. 1, 2, 2.25; 3, \$2.60; 4, \$2.90.....60&10
 Crescent.....60&10
 Cronk's Patent, Steel Covered.....50&10
 Duplex (Wood Track).....60&10
 Economy, \$5.00.....50&10
 Hamilton Wrought Steel Track.....55
 Interstate.....50&10
 Kidder's.....50&10
 Lane's New Standard.....60&10
 Lane's Parlor.....40
 Lane's Standard.....50&10
 Lundy, Steel Parlor.....45&10
 Magic.....50&10
 Matchless.....45
 Moody.....35
 Moore's Baggage Car Door.....35
 Moore's Elevator.....35
 Moore's Railroad.....50
 Nickel, Steel, Nos. 0, 25; 1, \$20; 2, \$15.....40&10
 Orleans Steel.....55
 Paragon Nos. 5, 6, 7 and 8.....20&10
 Pendulum, Payson's.....40&10
 Perfection.....50&10
 Richards.....30&10
 Samson Steel Anti-Friction.....40&10
 Star.....20&10
 Stearns' Anti-Friction.....25&10
 Stearns' Challenge.....25&10
 Sterling.....50&10
 Terry's Ideal.....50&10
 Terry's Modern.....50&10
 Terry's Shield.....50&10
 Terry's Solid.....50&10
 Terry's Wrought Single Strap.....50&10
 Victor, No. 1, \$15.00; No. 2, \$16.50; No. 3, \$18.00.....60&25
 Warner's Pat.....20&10
 Wild West.....45&10
 Zenith for Wood Track.....55

Harness Snaps—See Snaps.
Hatchets—
 American Axe and Tool Co.....40 & 10
 Hunt's.....40 & 10
 Hurd's.....40 & 10
 Mann's.....40 & 10
 Peck's.....40 & 10
 Underhill's.....40 & 10
 C. Hammond & Son.....10
 Fayette R. Plumb.....10
 Collins.....10
 Buffalo Hammer Co.....10
 Kelly's.....50 @ 50
 P. S. & W. Co.....@ 10
 Sargent's & Co.....@ 10
 Schulte, Lohoff & Co.....@ 10
 Ten Eyck Edge Tool Co.....@ 10

Hay and Straw Knives

See Knives.

Hinges—

Blind Hinges—

Clark's Nos. 1, 3, 5, 1888, Old Pattern.....75&10
 Nos. 1 and 3, Tip Pattern.....75&10
 No. 50, Buffalo Noiseless, 40, 60 and 65.....75
 Buffalo Reversible, Nos. 3, 2, 1, 0, 1 and 0.....80&10
 No. 1, Cottage, for wood only.....80&10
 No. 1, Diamond, for wood only.....80&10
 Dixie L. & P., Nos. 3, 2 1/2, 2, 1 1/2, 1, 0, 4 and 5.....75&10
 No. 25, Empire Reversible.....75&10
 Lull & Porter, Nos. 3, 2 1/2, 2, 1 1/2, 1, 0, 4 and 5.....75&10
 Morse Gravity, Nos. 2, 4, 4 1/2, 6, 8, 9 and 10.....50
 Hufter.....50&10
 Parker.....75&10
 North's Automatic Blind Fittings, No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50.....10
 Reiding's Gravity.....75&10
 Sargent's Nos. 1, 3, 5, 11, 12, 13.....75&10

Gate Hinges—

Automatic.....doz \$12.50, 50
 Clark's, Nos. 1, 2, 3.....60&10
 N. E. Reversible.....doz \$7.80, 60&10
 N. E. Reversible.....doz \$5.60, 60&10
 N. Y. State.....doz \$4.90, 60&10
 Western.....doz \$4.20, 60&10

Spring Hinges—

Acme.....30
 American, Gem and Star.....20
 Bardsley's Patent Checking.....15
 Barker's Double Acting.....25
 Bommer's Japanned.....30
 Bommer's All other kinds.....30
 Buckman's.....15
 Champion.....60
 Chicago.....30
 Devore, No. 1.....gro \$13.00
 Empire and Crown.....30
 Freeport.....\$12.00
 Geo's Spring and Blank Butts.....40
 Hero and Monarch.....55
 Ideal No. 3.....gro \$10.00
 J. G. C. Covered, gro.....\$30.00
 New Idea Nos. 1 and 10, gro.....\$13.00
 New Idea Dbl. Acting.....45
 No. 25 Unbreakable.....60
 Oxford.....20
 Reliable.....60
 Rex.....gro \$13.00
 Royal.....60
 Samson.....60
 Seams' Noiseless Floor Hinge.....25
 Set.....\$5.00
 Union Mfg. Co.....25
 Union Spring Hinge Co.'s List, March, 1888.....20
 U. S.....25
 Wiles, No. 1, gro.....\$10; \$13

Wrought Iron Hinges—

List February 14, 1891.
 Corrugated Strap and T.....80&10
 Strap and T.....60&10
 Plate Hinges, 8, 10 & 12 in.....50
 "Providence" over 12 in.....50
 Rolled Blind Hinges, Nos. 32 and 34.....50
 Rolled Blind Hinges, Nos. 232 and 234.....50
 Rolled Plate.....70&10
 Rolled Raised.....70&10
 Screw Hook and Eye.....\$4 in. \$5; \$4 in. \$4; \$4 in. \$4
 Screw Hook and Eye.....\$4 to 12 in. \$4; \$4 to 12 in. \$4; \$4 to 12 in. \$4
 Strap.....22 to 36 in. \$4; 22 to 36 in. \$4

Hoes—

Am. Axe and Tool Co., S. & O.....60&5
 Chatskany Tool Co., S. & O. Pat.....60&10
 Chandanoga Tool Co., S. & O. Pat.....60&10
 D. & H. Scovill.....20
 Grub.....60&10
 Lane's Crescent, Planter's Pattern.....45&5
 Lane's Razor Blade, Scovill Pattern.....30
 Maynard, S. & O. Pat.....45&5

Handled—

Garden, Mortar, &c.....70&70&25
 Magic.....doz \$4.00
 Planter's Cotton, &c.....70&70&25
 Warren Hoe.....60&25

Hog Rings and Rings—

See Rings and Rings.

Hoisting Apparatus—

See Machines, Hoisting.

Hollow-Ware—

See Ware, Hollow.

Holders—

Bag—
 Sprengle's Pat.....doz \$18.....60

Bit—

Angular.....doz \$24.00, 40&5
 Diagonal.....doz \$24.00, 40
 Extension.....40
 Barber's, doz \$15.00.....40&40
 Ives, doz \$20.00.....60&60

File and Tool—

Bals Pat.....doz \$4.00, 25
 Nicholson File Holders.....20

Sash—

Motley's Adj. Sash, Medium Size.....doz \$1.20, 40

Hooks—

Cast Iron—

Bird Cage, Reading.....60&10
 Bird Cage, Sargent's Tip.....60&10
 Cattle Line, Sargent's List.....55&10
 Ceiling, Sargent's List.....70
 Clothes Line, Moore's.....60&10
 Coat and Hat, Moore's.....70
 Coat and Hat, Reading.....60&10
 Coat and Hat, Sargent's List.....55&10
 Hammock, E. C. Stearns & Co., doz.....60
 Harness, Reading List.....55&10

Wire—

Atlas, Coat and Hat.....65
 Belt.....80&15
 Bardsley's Bird Cage Hooks, List April, 1892.....40
 Wire Coat and Hat, Gem, List April, 1892.....60&10
 Wire Coat and Hat, Miles, List April, 1892.....50&10
 Wire Coat and Hat, Standard, 60&10
 Bright Wire Goods—See Wire.

Wrought Iron—

Cotton.....doz \$1.25
 Cotton Pat. (N. Y. Mallet and Handle).....30
 Tassel and Picture, T. & S. Mfg. Co.....60
 Wrought Staples Hooks, &c.....See Wrought Goods

Miscellaneous—

Bush.....55&60
 Fish Hooks, American.....50
 Grass, No. 2, \$2.00; No. 3, \$2.10; No. 4, \$2.25
 Hooks and Eyes—Brass.....60&10
 Hooks and Eyes—Malleable Iron.....70&10
 Nollin's Grass.....doz \$2.25
 Whittefree—Patent.....55
 Bench Hooks—See Bench Stops.

Horse Nails—See Nails, Horse

Horse Shoes—

See Shoes, Horse.

Hose, Rubber—

Competition, Fair quality.....75&75&10
 Competition, Low Grade.....80&80
 Extra.....60&10
 N. Y. B. & P. Co., Dunder.....60&5
 N. Y. B. & P. Co., Extra.....40&5
 N. Y. B. & P. Co., Para.....25&5
 Standard.....70&10
 Cotton Garden, 1/4 in., coupled.....75
 Fair Quality, doz.....85
 Good Quality, doz.....85

Huskers—

Blair's Adjustable.....gr \$8.00
 Blair's Adjustable Clipper.....gr 7.00
 Hubbard's Solid Steel.....gr 4.50

Indurated Fiber Ware—

See Ware, Indurated Fiber.

Irons.

Curling—

Nicol's Patent Curling Iron Heater, doz.....\$1.00
 Silver Tipped Grace Darling Curling Iron, doz.....\$1.75
 No. 68.....1.50
 No. 69.....1.50
 No. 67, Mustache.....1.25

Sad—

From 4 to 10, at factory.....100
 B. B. Sad Irons, doz.....\$2.30
 Chinese Laundry (N.E. Butt Co.), doz.....15
 Crown Improved.....60&10
 Ideal Irons, new list.....50&10
 Mahony's Troy Pot. Irons.....25
 Mrs. Potts' Sad Irons, per set:
 Small lots.....No. 50 55 60 65
 National Self-Heating.....54, 20&20&25
 New England.....25
 Salamander Irons.....25
 Self-Heating.....doz \$3.00
 Self-Heating Tailors.....doz \$18.00
 Sensible, list Jan. 91.....50&10
 Sensible Tailors' Irons.....35

Soldering—

Soldering Coppers.....doz \$19.21
 Covert's Adjustable, list Jan. 1, 1886.....35&22
 Tinker's Dread.....doz \$1.75; gro. \$18

Pinking—

Pinking Irons, doz., 55&60.

Jack Screws—See Screws.

Jacks, Wagon—

Daisy.....35
 Lockport.....40
 Victor.....35

Kettles—

Brass, Spun, Plain, list Jan. 1, '91, 25&5
 Brass, Spun, Pld. M. list Jan. 1, '91, 20
 Stamped Brass Kettles.....doz \$21
 Ennealed and Tea—See Ware, Hollow.

Keys—

Lock, Ass'n list Dec. 30, 1886, 65&10
 Eagle, Cabinet, &c.....35
 Hotchkiss' Brass Blanks.....40
 Hotchkiss' Copper and Tinned.....35
 Hotchkiss' Pad and Cab.....35
 Wollensack's Tinned.....60&10

Knife Sharpeners—

See Sharpeners, Knife.

Knives—

Ames' Bread Knives, doz \$1.50, 15&20
 Ames' Butcher Knives.....25
 Ames' Shoe Knives.....25
 Foster Bros' Butcher.....40
 Jordan's A. A. Butchers' list.....not
 Moran's Shoe and Bread.....20&20
 Nichols' Butcher Knives.....40&10
 Wilson's Butcher Knives, list Dec 8, 1890.....25
 W. W. Wilson, Butcher, 6 in. \$2.00; 7 in. \$2.70; 8 in. \$3.80, &c.....40

Hand and Straw—See Hay Knives.

Table and Pocket—See Cutlery.

Corn—

Bradley's.....10
 Wadsworth's.....25&25

Drawing—

M. S. & W.....75&75&10
 Withery.....25
 Adjustable Handle.....25
 Bradley's.....75
 Douglas.....60&10
 Merrill.....16&10
 Watrous.....20
 L. & J. White.....20
 Wilkinson's Folding.....25&25

Hay and Straw—

Carter's Needle.....doz \$11.00
 Heath's.....doz \$13.00
 Lightning, from jobbers.....\$8.50
 Nollin's Hay.....doz \$7.00
 Wadsworth's.....40&75

Mincing—

Am. (2d quality), gr., 1 blade, \$7; net
 2 blades, \$12; 3 blades, \$18.....\$25
 Buffalo Adjustable.....doz \$3.00, 35
 Knapp & Cowies.....50&10
 Lotherop's.....20&10
 Smith's, doz., Single, \$2; Double \$3, 45&60

Knobs—

Bardsley's Wood Door, Shutter, &c.....15
 Base, Rubber Tip.....70&10
 Carriage, Jap.....gro 80, 60&10
 Door, Mineral.....60
 Door, Por. Jap'd.....70
 Door, Por. Nickel.....\$2.00
 Door, Por. Plated Nickel.....\$2.00
 Drawer, Porcelain.....60&10
 Hemacite Door Knobs.....40&10
 Picture, Hemacite.....35
 Picture, Judd's.....60&10
 Picture, Sargent's.....70&10
 Shutter, Porcelain.....55
 Yale & Towne Wood, list Dec, 1885.....40

Ladders.

Davies Extension and Single.....20&5

Ladies—

Melting, P. S. & W.....35&10
 Melting, Reading.....35
 Melting, Sargent's.....60
 Melting, Warners.....50

Lanterns—

Tubular—

Anti-Friction, with Guard.....doz \$4.50
 Brass Plated, Sq. Lift, Guard.....doz \$5.50
 Cop. Plated, Sq. Lift, Guard.....doz \$5.50
 O. K. with Guard.....doz \$3.50
 Regular, with Guard.....doz \$3.50
 Side Lift, with Guard.....doz \$4.00
 Square Lift, with Guard.....doz \$4.25

Bull's Eye Police—

2 1/2-inch flash light.....doz \$4.00
 3-inch flash light.....doz \$4.50
 2 1/2-inch regular.....doz \$3.60
 3-inch regular.....doz \$3.90

Lawn Mowers—

See Mowers, Lawn.

Leaders, Cattle—

Hotchkiss.....30
 Humason, Beckley & Co.'s.....70
 Peck, Stow & W. Co.....60
 Sargent's.....70&10

Lemon Squeezers—

See Squeezers, Lemon.

Lifters, Transom—

Bardsley & Mout, Sure Grip.....50
 Excelsior.....50
 Payson's.....50
 Imperial.....60
 Solid Grip.....60
 Universal.....60
 Reither's, list Feb. 20, 1891.....30
 Brass, Real Bronze or Nickel Plate.....30
 Bronzed Iron Rods.....60
 Shaw's.....50
 Wollensack's.....50
 Class 3 and 4, Bronzed.....60
 Class 3 and 4, Bronzed Iron.....40
 Class 3 and 4, Bronze Metal.....50
 Skylight Lifters.....25

Lines—

Chalk.....60
 Cotton and Linen Fish.....50
 Cotton Chalk.....55
 Mason's Colored Cotton.....45
 Mason's Linen, 84 ft., No. 1, \$1.25; No. 2, \$1.75; No. 3, \$2.25; No. 4, \$2.75; No. 5, \$3.25.....25
 Mason's Linen, No. 3 1/2, \$1.50; No. 4, \$2.00; No. 4 1/2, \$2.50.....25
 Ossavan Mills.....15
 Braided Chalk.....50
 Cotton Clothes Lines.....doz \$6
 Solid Braided Ventilator and Mason's Lines.....25
 Twisted Chalk.....60
 Samson Cotton, No. 4, \$2; No. 4 1/2, \$2.50.....25

Silver Lake, Braided, No. 0, \$6.00; No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50.....40

gro. 25
 Ventilator Cord, Samson Braided, White or Drab Cotton.....doz \$7.50, 20

Wire Clothes, Nos. 18 19 20
 100 ft.....\$3.50 \$3.00 \$2.50

Links, Open—

Terry's—per gro.:
 Nos. 1 2 3 4
 \$6.00 8.00 12.00 16.00

Locks, &c.—

Cabinet—

Eagle, Gaylord Par. list March '84, rev. ker and Corbin.....Jan. 1, '85, 33&22
 Barnes Mfg. Co.....40
 Delta, Nos. 36 to 39.....40
 Deitz, Nos. 51 to 63.....40
 Deitz, Nos. 87 to 96.....30
 Champion Night Latches.....40
 Eagle and Corbin Trunk.....25
 Champion Cab. and Combin.....35
 Romer's.....25
 Yale.....net prices

Door, Locks, Latches, &c.—

Barnes Mfg. Co.....40
 Littan, Graham & Mathes, list Jan. 1890.....60
 Brooklyn Latches.....50
 Deitz Flat Key.....30
 Mallory, Wheeler & Co., list July, '88.....60

Plate. 33½¢ & 2¢
 Romer's Night Latches 15¢
 R. & L. Mfg. Co., list Mar. 20, 1893.
 Sargent & Co. L. 188. 1.75. 60¢ & 10¢
 Warner's Burglar Proof. ½ doz. \$2.00, 50¢
 Yale. net prices

Elevator—
 Moore's 33½¢

Padlocks—
 Wrought Iron Padlocks—
 Brittan, Graham & Mathes, list June
 10, 1891. 50¢ & 2¢
 Mallory, Wheeler Co., list January 1,
 1894. 75¢
 Norwich Lock Mfg. Co., list June 10,
 1891. 50¢ & 2¢
 Russell & Erwin Mfg. Co., list June
 10, 1891. 50¢ & 2¢
 Sargent & Co., list January 1, 1891. 75¢
 William Wilcox Mfg. Co., list Janu-
 ary 1, 1891. 75¢ & 20¢
 Ames Sword Co. up to No. 150. 40¢
 Ames Sword Co. above No. 150. 50¢
 Barnes Mfg. Co. 40¢ & 10¢
 Champion Padlocks. 40¢
 A. E. Deltz. 40¢
 Eagle. 40¢
 Eureka, Eagle Lock Co. 40¢ & 2¢
 E. T. Fraim's Keystone Scandinavian.
 1010 line. 90¢ & 10¢
 120 line. 90¢ & 25¢
 100 line. 65¢
 510 line. 70¢ & 10¢
 225, 610 and 200 lines. 50¢ & 5¢
 All other numbers. 50¢ & 5¢
 Horseshoe. ½ doz \$9, 50¢ & 10¢
 Hotchkiss. 30¢
 Nock's. 30¢
 Romer's Nos. 0 to 91. 30¢
 Romer's Scandinavian, &c., Nos. 100 to
 605. 15¢
 Scandinavian. 90¢ & 50¢
 Slaymaker, Barry & Co.
 No. 1010 line. 90¢ & 50¢
 No. 41 line. 90¢
 No. 61 line. 90¢
 No. 21 line. 80¢
 Star. 80¢
 Yale Lock Mfg. Co.'s. net prices

Sash, &c.—
 Attwell Mfg. Co. 25¢ & 31½¢
 Champion Safety list January 1893. 70¢ & 5¢
 Clark's No. 1, 110. No. 2, 88 gr. 35¢
 Common Sense, Jap'd, Cop'd and
 Br'zed. gr \$4.00
 Common Sense, Nickel Plated.
 Corbin's Daisy, list Feb. 15, 1886. gr \$10.00
 Davis Bronze, Barnes Mfg. Co. 60¢
 Ferguson's. 33½¢
 Fish (Liesche's pat.), No. 100, gr. 50¢
 Giant, list Jan. 1892. 70¢ & 5¢
 Hammond's Window Springs. 40¢
 Hugin's New Sash Locks. 25¢ & 2¢
 Hugin's Sash Balances. 25¢ & 2¢
 Ives' Patent. 60¢ & 10¢ & 50¢ & 10¢ & 10¢
 Kempshall's Gravity. 60¢
 Kempshall's Model. 60¢ & 10¢ & 10¢
 Monarch. 60¢
 Payson's Perfect. 60¢ & 10¢ & 10¢
 Reading. 60¢ & 10¢ & 10¢ & 10¢
 Security. 70¢
 Universal. 30¢
 Victor. 60¢ & 10¢ & 2¢
 Walker's. 10¢
 Wolcott's. 60¢ & 10¢ & 5¢

Lumber Tools—
 see LUMBER, Lumber.

Lustro—
 Four-ounce bottles. ½ doz, \$1.75; ½
 gross. \$17.00

Machines.
Boring—
 Without.
 Augers, Upright, Angular.
 Boss, Carpenters' 3.60
 Boss, Ship Bldrs'. 3.85
 Douglas. \$5.50 \$6.75. 50¢
 Jennings'. 5.50 6.75. 50¢ & 10¢
 Millers' Fall. 7.50 25¢
 Phillips' Patent.
 with Auger. 7.00 7.50.
 Snell's, Rice's Pat. 6.50 6.75. 40¢ & 10¢ & 10¢

Fluting—
 American, 5 in., \$3.00; 6 in., \$3.40; 7 in.,
 \$4.50 each. 35¢
 Combined Fluter and S&B Iron.
 ½ doz \$15.00. 30¢
 Crown, 4½ in., \$3.50; 6 in., \$4.00; 8 in.,
 \$6.50 each. 35¢
 Crown Hand Fluter, No. 1, \$15.00; 2,
 \$12.50; 3, \$10.00; 4, \$8.25. 30¢
 Crown Jewels, 6 in. \$8.50 each, 35¢
 Domestic Fluter. each, \$1.50
 Eagle, 3½-inch Rolls, \$2.15. 35¢
 Eagle, 5½-inch Rolls, \$2.85. 35¢
 Geneva Hand Fluter, White Metal,
 ½ doz \$12, 25¢
 Knox, 6-inch Rolls. \$3.60 each, 35¢
 Shepard Hand Fluter, No. 85, per doz
 \$15.50. 40¢
 Shepard Hand Fluter No. 95, ½ doz
 \$3.00. 40¢
 Shepard Hand Fluter, No. 110, ½ doz
 \$11.00. 40¢

Holisting—
 Moore's Anti-Friction Differential Pul-
 ley Block. 20¢
 Moore's Hand Holst, with Lock Brake. 20¢
 Moore's Rope Differential Pulley
 Block. 60¢
 Harris & Beckley (Teal Patent). 30¢
 See also Blocks.

Washing—
 Fair and Square. ½ doz \$42.00
 Anthony Wayne. ½ doz, No. 1, \$42; No.
 2, \$38; No. 3, \$42.
 Wayne American. ½ doz \$38.00
 Weisell. ½ doz \$54.00
 Western Star ½ doz, No. 2, \$38; No. 3
 \$39

Mallets—
 B. & L. Block Co., Hickory & L. V.
 30 & 30 & 10¢
 Hickory. 20 & 10 & 20 & 10 & 10¢
 Lignum vitae. 20 & 10 & 20 & 10 & 10¢

Mattocks—Regular list.
 60 & 10 & 60 & 10 & 5¢

Measures—
 Standard Fibreware, No. 1, peck ½
 dozen, \$3.50; ¼-peck, \$3.00

Meat Cutters—
 See Cutters, Meat.

Menders, Harness—
 Per doz. \$2.00

Milk Cans—See Cans, Milk.

Mills—
Coffee—
 Box and Side, list Jan. 1, 1888. 60¢ & 10¢ & 5¢
 Net prices are often made which are
 lower than above discount.
 American, Enterprise Mfg. Co., list Jan.
 17, 1893. 20¢
 The Swift, Lane Bros. 30¢
 Wadell's New Box Mills, Ideal
 Brand, New List. 60¢

Mincing Knives—
 See Knives, Mincing.

Molasses Gates—
 See Gates, Molasses.

Money Drawers—
 See Drawers, Money.

Mowers, Lawn—
 Out of Season.

Muzzles—
 Safety. ½ doz, \$3.00, 25¢

Nails—
 Cut and Wire. See Trade Report.
 Wire Nails, Papered.
 Association list, May 1, '92. 35¢ & 5¢
 Tack Mfrs' list. 70¢ & 10¢ & 10¢
 Hungarian, Finishing, Upholsterers', &c.
 See Tacks.

Horse—
 Nos. 6 7 8 9 10
 A. C. 25¢ 23¢ 22¢ 21¢ 21¢ 40¢ & 10¢
 American. 9½ 9½ 9½ 9½ 9½ net
 Anchor. 23¢ 21¢ 20¢ 19¢ 18¢ 35¢
 Ausable. 28¢ 26¢ 25¢ 24¢ 23¢
 Capewell. 19¢ 18¢ 17¢ 16¢ 15¢ 40¢ & 5¢
 C. B. K. 25¢ 23¢ 22¢ 21¢ 21¢ 40¢
 Champion. 25¢ 23¢ 22¢ 21¢ 20¢ 10¢ & 10¢ & 10¢
 Champlain. 28¢ 26¢ 25¢ 24¢ 23¢ 40¢ & 5¢
 Clinton, Fin. 19¢ 17¢ 16¢ 15¢ 14¢ 30¢ & 5¢
 Empire Bronze. 13¢ & 14¢
 Essex. 28¢ 26¢ 25¢ 24¢ 23¢ 40¢ & 10¢ & 50¢
 Lyra. 9½ 9½ 9½ 9½ 9½ net
 Maud S. 25¢ 23¢ 22¢ 21¢ 21¢ 50¢ & 10¢ & 5¢
 Northwest'n. 25¢ 23¢ 22¢ 21¢ 20¢ 25¢ & 5¢
 Putnam. 23¢ 21¢ 20¢ 19¢ 18¢ 15¢
 Snowden. 9½ 9½ 9½ 9½ 9½ net
 Standard. 23¢ 21¢ 20¢ 19¢ 18¢ 35¢
 Vulcan. 23¢ 21¢ 20¢ 19¢ 18¢ 25¢
 Western. 23¢ 21¢ 20¢ 19¢ 18¢ 50¢

Picture—
 Brass Head, Combination list. 50¢ & 10¢
 Brass Head, Sargent's list. 60¢ & 10¢
 Porcelain Head, Combination list. 40¢ & 10¢
 Porcelain Head, Sargent's list. 50¢ & 10¢ & 10¢
 Niles' Patent. 40¢

Nail Pullers—See Pullers, Nail.

Nail Sets—See Sets, Nail.

Nut Crackers—
 See Crackers, Nut.

Nuts—List Dec. 18, 1889.
 Square, Hex.
 Cold Punched. 5.00¢ 6.10¢ off list
 In packages of 100 lb, add 1-10¢ lb
 1 lb, in packages less than 100 lb, add
 1¢ lb, net.
 Hot Pressed. 5.80¢ 6.50¢ off list

Oakum—
 Best or Government. ½ doz 6¼¢ & 7¼¢
 Navy. ½ doz 5¢ & 5¼¢
 U. S. Navy. ½ doz 6¼¢ & 6½¢

Oil Tanks—See Tanks, Oil.

Oilers—
 Brass and Copper. 50¢ & 10¢ & 50¢ & 10¢ & 5¢
 Zinc and Tin. 65¢ & 10¢ & 70¢ & 5¢
 Broughton's rass. 50¢
 Broughton's Zinc. 60¢
 Malleable, Hammers' Improved No. 1,
 \$3.60; No. 2, \$4.00; No. 3, \$4.40. 10¢ & 10¢ & 5¢
 Malleable, Hammers' Old Pattern, same
 list. 45¢
 Olmstead's Brass and Copper. 50¢
 Olmstead's Tin and Zinc. 60¢
 Prior's Pat. or "Paragon" Brass. 60¢
 Prior's Pat. or "Paragon" Zinc. 60¢ & 10¢ & 10¢
 Steel, Draper & Williams. 60¢
 Wilmot & Hobbs Mfg. Co., Steel Anti-
 Rust. 60¢

Openers, Can—
 American. ½ gross \$1.75 to \$2.00
 Champion. ½ doz \$2.00. 60¢
 Domestic. ½ doz \$2.00. 45¢
 Duplex. ½ doz \$2.50, 15¢ & 20¢
 Eureka. ½ doz \$2.50, 10¢
 Excelsior, No. 1 \$2.50; No. 2, \$1.50. 40¢
 Lyman's. ½ doz \$3.75, 20¢
 Messenger's Comet. ½ doz \$3.00, 25¢
 Moore's. 70¢
 No. 4, French. ½ doz \$2.25, 65¢ & 60¢
 No. 5, Iron Hand. gr \$8.00, 45¢ & 50¢
 Sarding Sissors. ½ doz \$2.75 to \$3.00
 Sprague, No. 1, 55¢; 2, 60¢; 3, 65¢.
 Star. ½ doz \$2.75
 Universal. ½ doz \$3.00. 55¢ & 5¢
 World's Best ½ gross, No. 1, \$12.00;
 No. 2, \$24.00; No. 3, \$36.00. 60¢ & 10¢

Packing, Steam—
Rubber—
 Standard, fair quality. 70¢ & 70¢ & 10¢
 Inferior quality. 70¢ & 80¢
 Extra. 60¢ & 80¢ & 5¢
 Jenkins' Standard. ½ doz \$0.90. 25¢ & 25¢ & 5¢
 N. Y. B. & P. Co., Empire. 60¢
 N. Y. B. & P. Co., Salamander. 25¢
 N. Y. B. & P. Co., Standard. 60¢

Miscellaneous—
 American Packing. 10¢ & 11¢ ½ lb
 Cotton Packing. 15¢ & 17¢ ½ lb
 Italian Packing. 13¢ & 14¢ ½ lb
 Jute. 7¢ & 8¢ ½ lb
 Russia Packing. 14¢ ½ lb

Pails—
Creamery—
 S. S. & Co., 18-qt., \$7.00; 20-qt., \$7.25
 ½ doz. 5¢

Galvanized—
 Quarts 10 12 14
 Central Stamping Co. 2.50 2.75 3.00
 Fire Buckets. 2.75 3.25 3.60
 Hill's Heavy Weight, ½ doz. 3.00 3.25 3.75
 Hill's Light Weight, ½ doz. 2.75 3.00 3.25
 Iron Clad. 2.50 2.75 3.00
 Sidney Shepard & Co. 2.50 2.75 3.00
 Buckets—See Well Buckets.

Indurated Fiber Ware
 Fire Pails, deep. ½ doz \$4.80
 Fire Pails, round bottom. ½ doz \$5.40
 Milk, 14 qt. ½ doz \$5.40
 Stable, 14 qt. ½ doz \$6.00
 Star Pails, 12 qt. ½ doz \$4.20

Standard Fiber Ware—
 Plain. Deord
 Buggy Pails. \$3.00
 Chamber Pails, 14 qt. 4.00 7.00
 Fire Pails, 14 qt. 3.75 4.25
 Fire Pails, No. 12 qt. ½ doz 3.75
 Fire Pails, No. 24 qt. ½ doz 4.25
 Horse Pails. 4.00
 Slop Jars (bal. trap). 7.50 8.50
 Sugar Pails. 5.00 5.50
 Water Pails, 12 qt. ½ doz 3.15 3.75

Pans—
Dripping—
 Large sizes. ½ doz 5¢
 Small sizes. ½ doz 6¢
 Silver & Co. (Covered). 40¢

Fry—
 Standard List:
 No. 1. \$3.00 3.75 4.25 4.75 5.25
 No. 2. 5 6 7 8
 ½ doz. \$6.00 \$7.00 \$8.00 \$9.00
 Polished, regular goods. 75¢ & 10¢
 Acme Fry Pans. 60¢ & 5¢

Dust—
 Steel Edge, No. 1. ½ doz \$1.75

Roasting and Baking—
 Columbian, S. S. & Co., Nos. 10, \$2; 20,
 \$2.25; 30, \$2.50 each. 60¢ & 10¢

Paper and Cloth—
Sand and Emery—
 List April 19, 1888. 50¢ & 10¢ & 50¢ & 10¢
 Sibley's Emery and Crocus Cloth. 30¢

Parers—
Apple—
 Advance. ½ doz \$4.75
 Baldwin. ½ doz 5.25
 Bonanza. each 5.00
 Daisy. ½ doz 4.00
 Dandy. each 7.50
 Edips Star. ½ doz 4.00
 Eureka, 1888. each 18.00
 Family Bay State. ½ doz 12.00
 Favorite. ½ doz 5.00
 Gold Medal. ½ doz 4.00
 Ideal. ½ doz 4.00
 Improved Bay State. ½ doz 27.00 to \$30.00
 Lehigh Star. ½ doz 4.50
 Monarch. ½ doz 13.50
 New Lightning. ½ doz 5.50
 Oriole. ½ doz 4.00
 Penn. ½ doz 3.00
 Perfection. ½ doz 4.00
 Pomona. ½ doz 4.00
 Reading. ½ doz 4.25
 Reading 78. ½ doz 7.00
 Rocking Table. ½ doz 6.00
 Turn Table. ½ doz 4.50
 Victor. ½ doz 13.50
 Waverly. ½ doz 4.00
 White Mountain. ½ doz 4.00

Potato—
 Antrim Combination. ½ doz \$5.50
 Hoosier. ½ doz \$5.50
 Saratoga. ½ doz \$5.50
 White Mountain. ½ doz \$4.50

Pencils, Soapstone—
 See Crayons.

Pickers, Fruit—
 Prize Fruit Pickers. 50¢

Picks—
 Railroad or Adze Eye, 5 to 6, \$12.00; 6
 to 7, \$13.00. 60¢ & 10¢ & 50¢ & 10¢ & 5¢

Picture Nails—
 See Nails, Picture.

Pinking Irons—
 See Irons, Pinking.

Pins—
Bow—
 Humason, Beckley & Co.'s. 60¢ & 10¢
 Peck Stow & W. Co.'s. 60¢ & 10¢ & 50¢ & 10¢ & 5¢
 Sargent & Co.'s, \$17 and 18¢. 60¢ & 10¢

Escutcheon—
 Iron, list Nov. 11, 1885. 60¢ & 10¢ & 50¢ & 10¢ & 5¢
 Brass. 60¢ & 10¢ & 50¢ & 10¢ & 5¢

Pipe, Wrought Iron—
 List April 13, 1893.
 1½ and under, Plain. 57¢ & 10¢ & 10¢
 1½ and under, Galv. 60¢ & 10¢ & 10¢
 1½ and over, Plain. 67¢ & 10¢ & 10¢
 1½ and over, Galv. 57¢ & 10¢ & 10¢
 Boiler Tubes, list Oct. 24, 1892. 55¢ & 10¢ & 10¢
 Casting, list Nov. 18, 1892. 52¢ & 10¢ & 10¢
 Cold Drawn Seamless Steel Tubing. 60¢
 Inserted Joints Casing, list Nov. 18,
 1892. 47¢ & 5¢
 Steel Boiler Tubes. 27¢ & 5¢

Planes and Plane Irons—
Wood Planes—
 Molding. 40¢ & 10¢ & 50¢
 Bench, First quality. 45¢ & 10¢ & 55¢
 Bench, Second quality. 60¢ & 10¢ & 50¢ & 10¢
 Bailey's (Stanley R. & L. Co.). 60¢ & 10¢

Iron Planes—
 Bailey's (Stanley R. & L. Co.). 60¢ & 10¢
 Birmingham Plane Co. 60¢ & 10¢ & 50¢
 Chapin's Iron Planes. 60¢ & 10¢ & 50¢
 Davis Iron Planes. 60¢ & 10¢ & 50¢
 Gate Tool Co.'s Self-Setting. 60¢ & 10¢ & 10¢
 Meriden Mal. Iron Co. 50¢ & 10¢ & 50¢
 Miscellaneous Planes (Stanley R. & L.
 Co.). 25¢ & 10¢
 Sargent's. 60¢ & 10¢ & 10¢
 Standard Tool Co. 60¢ & 10¢ & 50¢
 Steers' Iron Planes. 50¢ & 10¢ & 50¢

Plane Irons—
 Auburn Thistle. 30¢ & 10¢ & 30¢ & 10¢ & 10¢
 Buck Bros. 50¢
 Butcher's. \$5.00 to \$5.50 to a

Ohio. 30¢ & 10¢ & 30¢ & 10¢ & 10¢
 Sandusky. 50¢ & 10¢
 Stanley R. & L. Co. 50¢ & 10¢
 L. & J. White. 25¢

Plates—
 Fellow. ½ doz 6¢ & 6½¢

Pilers and Nippers—
 Button's Patent. 60¢
 Carrow's Pat. Wire Cutters. 20¢
 Cronk's 8 in., \$15.00; 10 in. \$20
 Cronk's Button Pattern. 50¢ & 10¢ & 50¢
 Cronk's Carrier Pliers. 60¢ & 10¢ & 50¢
 Eureka Pliers and Nippers. 40¢
 Gas Pliers. 60¢
 Gas Pliers, Custer's Nickel Plated. 60¢ & 5¢
 Halls No. 2, 5 in., \$18.50; No. 4, 7 in.
 \$21.00 ½ doz. 40¢
 Humason & Beckley Mfg. Co. 50¢ & 50¢ & 10¢
 Lindsay's Giant. 33½¢
 Morrill's Parallel. ½ doz, \$12.00. 50¢ & 5¢
 P. S. & W. Cast Steel. 50¢ & 50¢ & 5¢
 P. S. & W. Tinnars' Cutting Nippers.
 add 6¢. 10¢
 Russell's Parallel. 25¢

Plumbs and Levels—
 Regular List. 75¢ & 10¢ & 75¢ & 10¢ & 10¢
 Cook's. 10¢ & 10¢
 Davis Inclinoimeters. 10¢ & 10¢
 Davis Iron Levels. 30¢
 Disston's. 50¢
 Pocket Levels. 70¢ & 10¢ & 70¢ & 10¢ & 10¢
 Stanley's Duplex. 20¢ & 10¢
 Stanley's Handy. 20¢ & 10¢

Poachers, Egg—
 Buffalo Steam Egg Poachers, ½ doz.
 No. 1, \$6.00; No. 2, \$9.00. 33½¢
 Silver & Co., 8-Ring, ½ doz, \$4.00; 3-
 Ring. \$2.00

Pokes, Animal—
 Bishop's American. ½ doz \$2.65
 Bishop's I. X. L. ½ doz \$5.75
 Bishop's Steel Monarch. ½ doz \$4.60
 Bishop's Pioneer. ½ doz \$3.50
 Bolding. ½ doz \$6.00
 Buckeye, Single Stale. ½ doz \$2.75
 Eagle, Double Stale. ½ doz \$5.75
 Eagle, Single Stale. ½ doz \$3.75
 Metallic Horse Poke. ½ doz \$6.00

Police Goods—
 Daley's Improved Handcuffs, 2 Hands,
 Polished, ½ doz, \$48.00; Nickle-
 plated, 3 hands, Polished, ½ doz,
 \$72.00; Nickle-plated, \$84.00. 25¢
 J. P. Lovell's Police Goods. 25¢
 Newhall Ship Chandlery Co., Hand-
 cuffs, \$15.00 ½ doz. 25¢
 Tower's. 25¢

Polish—Metal—
 Gaston's Silver Compound. 33½¢
 Prestoline. 30¢
 Prestoline Paste. 33½¢

Stove—
 Black Eagle Benzine Paste, 5 and 10 lb
 cans. 12½¢
 Black Flag. gr \$7.20
 Black Flag, 5 and 10 lb pails. 10¢
 Black Flag, Liquid, in bottles, 5 and 10
 lb. 10¢
 Black Jack Water Paste, 5 and 10 lb
 cans. 12½¢
 Bonnell's Liquid Stove Polish, ½ gro \$9.00
 Bonnell's Paste Stove Polish, ½ gro \$9.00
 Boynton's Noon Day. gr \$13.00
 Crown Paste. gr \$7.20
 Crown Paste in 5 and 10 lb pails, ½ lb 124
 Diamond O. K. Enamel. ½ gro \$19.00
 Diamond Rock Nickel Cleaner gr \$10 20
 Joseph Dixon's. gr \$6.00, 10¢
 Dixon's Plumbago. ½ lb \$8
 Fireside. gr \$2.50
 Gen. gr \$4.50
 Gold Medal. gr \$2.00, 25¢
 Japanese. gr \$3.50
 Jet Black. gr \$3.50
 Lustr. gr \$4.75
 Nickel Plate Paste. gr \$6.00
 Parlor Pride Stove Enamel, ½ gro,
 Raven Liquid, 6 oz. bottles. gr \$8.00
 Raven Liquid, 8 oz. bottles. gr \$9.00
 Raven Paste in 5 lb. pails (cases of 6
 pails), ½ lb 10¢
 Raven Water Polish, large boxes. gr \$7.20
 Rising Sun, 5 gro lots. gr \$2.50
 Ruby. gr \$3.75
 Yates' Liquid, 2 3 5 10 gal
 ½ gal. \$0.80 70 60 50
 Yates Standard Paste Polish, 10 lb cans,
 ½ lb 12½¢

Poppers, Corn—
 Round or Square,
 1 qt. ½ doz \$1.00; ½ gr \$3.00
 1½ qt. ½ doz \$1.00; ½ gr \$9.00
 2 qt. ½ doz \$1.50; ½ gr \$14.00

**Post Hole and Tree Au-
 gers and Diggers—**
 See Diggers, Post Holes, &c.

Potato Parers—
 See Parers, Potato.

Pots—
Glue—
 Enameled. 40¢ & 10¢ & 40¢ & 10¢ & 5¢
 Family, Howe's, Eureka. 40¢
 Family, L. F. C.'s "Hanc". 60¢
 Tinned. 40¢ & 10¢ & 40¢ & 10¢ & 5¢

Powder—
In Canisters—
 Duck, 1 lb each. \$2.25
 Fine Sporting, 1 lb each. \$4.25
 Rifle, ½ lb each. 15¢
 Rifle, 1 lb each. 25¢

In Kegs—
 Duck, 6½ lb kegs. \$2.25
 Duck, 12½ lb kegs. \$4.25
 Duck, 25 lb kegs. \$8.00
 Rifle, 6½ lb kegs. \$1.10
 Rifle, 12½ lb kegs. \$1.90
 Rifle, 25 lb kegs. \$3.25

Presses—
Fruit and Jelly—
 Enterprise Mfg. Co. 25¢
 Jenks. ½ doz \$3.50
 Shepard's Queen City. ½ doz \$3.50
 Silver & Co. ½ doz \$2.75

**Pruning Hooks and
 Shears—See Shears.**

Pullers Nail-

Eclipse..... * doz., \$24.00, 40%
 Economy..... * doz., \$18.00, 40%
 Giant, No. 1..... * doz., \$18.00, 10%
 Giant, No. 2..... * doz., \$18.00, 10%
 Pelican..... * doz., \$3.00, 25%
 Seranton..... * doz., \$15.00, 35%

Pulleys-

Brass Screw..... 70%
 Hay Fork, "Anti-Friction," 5 in. dia., \$5.70..... 50%
 Hay Fork, "P" Common and Patent Bushed..... 20%
 Hay Fork, Moore's Anti-Friction 5 in. Wheel, * doz., \$12.00..... 40%
 Hay Fork, Reed's Self-Lubricating..... 60%
 Hay Fork, Solid Eye, \$4.00, Swivel, \$4.50..... 50%
 Hay Fork, Tarbox Pat. Iron..... 20%
 Hot House, Awning, * doz., \$6.00, 70%
 Japanned Clothes Line..... 80%
 Japanned Screw..... 60%
 Japanned Side..... 60%
 Moore's Ceiling or End, Anti-Friction..... 40%
 Moore's Dumb Watter, Anti-Friction..... 50%
 Moore's Electric Light..... 35%
 Moore's Side, Anti-Friction..... 50%
 Bash (Auger Mortise)..... 60%
 Common Sense..... 60%
 Empire..... 60%
 Acme..... 60%
 Ideal, Nos. 2, 4, 10 & 15 * doz. net, 1 1/2 Star..... 45%
 Ideal, Nos. 25 and 55..... * doz. 22 1/2 net.
 On bbl. lots extra 5%
 Shade Rack..... 45%
 Sheppard's Niagara, No. 25..... * doz. 23 1/2 net
 Tackle Blocks-See Blocks.

Pumps-

Cistern, Best Makers..... 80%
 Pitcher Spout, Best Makers..... 80%
 Pitcher Spout, Cheaper G'ds..... 75%
 Myers' Pumps, low list..... 50%

Punches-

Avery's Revolving..... 40%
 Avery's Saw and Punch..... 40%
 Bemis & Call Co.'s Cast Steel Drive..... 50%
 Bemis & Call Co.'s Check..... 55%
 Bemis & Call Co.'s Spring..... 60%
 Bemis & Call Co.'s Springfield Socket..... 65%
 Niagara Hollow Punches..... 20%
 Niagara Solid Punches..... 15%
 Rice Hand Punches..... 15%
 Saddle's or Drive, good..... * doz., 60%
 Spring, good quality..... * doz., 50%
 Spring, Leach's Pat., P. S. & W. Co., * doz., \$1.44..... 55%
 Tinners' Hollow Punches, P. S. & W. Co., * doz., \$2.00..... 20%

Rail-

Barn Door, Light, In. 1/2 * 3/4 * 1/2
 Per 100 feet..... \$2.00 2.50 3.10, 10%
 B. D. for N. E. Hangers.....

Small. Med. Large.
 Carrier, double braced, Steel Rail, * 100 ft..... \$3.15 2.70 3.25 Net
 Lundy Parlor Door, Painted Edge, * 100 ft..... \$1.75
 Moody Steel Rail, * ft., 5 1/2..... 45%
 Moore's Steel Rail..... 25%
 Sliding Door, Bronzed Wrt Iron, * ft., 7 1/2
 Sliding Door, Iron, Painted, * ft., 4, 40%
 Sliding Door, Flat Brass, * ft., 6, 36%
 Terry's Steel Rail, * ft., 4, 42%
 Victor Track Rail, 7 1/2 * foot..... 50%

Rakes-

Cast Steel, Association G'ds..... 70%
 Cast Steel, outside G'ds..... 70%
 Malleable..... 70%
 Fort Madison Price Bow Braces and Peerless..... 65%
 Fort Madison Steel Tooth Lawn Rake, \$6.00..... 25%
 The Gibbs'..... * doz., \$4.00
 Gibbs' Acme Lawn Rake..... * doz., \$4.75
 Gibbs' Canton Lawn Rake..... * doz., \$5.75
 Gibbs' Crown Lawn Rake, No. 1..... * doz., \$4.00; No. 2, \$5.30
 Gibbs' Favorite Lawn Rake..... * doz., \$3.90
 Gibbs' Hustler No. 0..... * doz., \$4.25
 Gibbs' Hustler No. 1..... * doz., \$4.40
 Onetida Lawn Rake..... * doz., \$6.00

Razors-

Campbell Cutlery Co..... 60%
 Electric Cutlery Co..... Net prices
 Galvanic..... * doz., \$15.00
 Jordan's A.A.A. new list..... Net prices
 Jordan's Old Fashioned, new list..... Net prices
 J. H. Torrey Razor..... Net prices
 Wostenholm and Butcher, \$10 to 2..... 10%

Razor Straps-

See Straps, Razor.

Registers-

Moore's Bronze Finishes..... 70%
 Moore's Electroplated..... 75%
 Moore's Japanned..... 75%
 Moore's Solid Bronze..... 65%
 Moore's Stove Pipe..... 35%

Rings and Ringers-

Bull Rings-
 Ellrich Edw. Co., White Metal, low list..... 50%
 Hotchkiss' low list..... 30%
 Humason, Beckley & Co.'s..... 70%
 Peck, Stow & W. Co.'s..... 50%
 Sargent's..... 75%
 Union Nut Co..... 65%

Hog Rings and Ringers-

Blair's Hog Ringers..... * doz \$2.00
 Blair's Hog Ringers..... * doz 90%
 Brown's Ringers..... * doz \$2.00
 Brown's Ringers..... * doz \$1.15
 Champion Ringers..... * doz \$2.00
 Champion Ringers, Double..... * doz \$2.25
 Electric Hog Ringers..... * doz \$2.25
 Electric Hog Ringers..... * doz boxes \$1.50
 Hill's Improved Ringers..... * doz \$1.25
 Hill's Old Style Ringers..... * doz \$1.12 1/2
 Hill's Ringers..... * doz bxs \$1.00
 Hill's Tongue..... * doz \$3.00
 Major Ringers..... * doz \$2.25
 Major Ringers..... * doz \$2.15
 Perfect Ringers..... * doz bxs \$1.50
 Top of the Hill Ringers..... * doz \$2.00
 Top of the Hill Ringers..... * doz \$1.25

Rivets and Burrs-

Norway Iron, list Nov. 17, '87..... 60%
 Second quality..... 70%
 Copper..... 60%
 Coppered Iron, Betina, Brand..... 50%

Rivet Sets-See Sets.**Roasting and Baking**

Pans-See Pans, Roasting and Baking.

Rods-

Stair, Black Walnut..... * doz 40%
 Stair, Brass..... 25%

Rollers-

Acme Moore's Anti-Friction..... 55%
 Barn Door, Sargent's list..... 60%
 Moore's Barn Door Stay..... 50%
 Union Barn Door Roller..... 70%
 Thompson Mfg. Co.'s Lawn Rollers..... 30%

Rope-The following prices are f. o. b., New York or factory, and are shaded

1/4" @ 1/2" on large lots; terms, 1 1/2% for cash.
 Manila, 7-16 in. diam. and larger..... 7 1/2%
 Manila, 1/4 and 5-16 in..... 8 1/2%
 Manila, Tarrad Rope..... 7 1/2%
 Manila, Hay Rope, Med. in..... 7 1/2%
 Sisal, 7-16 in. and larger..... 7 1/2%
 Sisal, 1/4 and 5-16 in..... 6 1/2%
 Sisal, Hay Rope..... 5 1/2%
 Sisal, Tarrad Rope..... 5 1/2%
 Sisal, Medium Lath Yarn..... 5 1/2%
 New Zealand, 7-16 in. and larger..... 5 1/2%
 New Zealand, 1/4 inch..... 5 1/2%
 New Zealand, 1/4 and 5-16 in..... 5 1/2%
 New Zealand, Hay Rope..... 5 1/2%
 New Zealand, Tarrad Rope..... 5 1/2%
 Cotton Rope..... 13%
 Jute Rope..... 6 1/2%

Wire-

List February, 1892. All kinds..... 45%

Rules-

Boxwood..... 30%
 Ivory..... 50%
 Statett's Steel Rules and Straight Edges..... 25%

Sad Irons-See Irons, Sad.**Sand and Emery Paper**

and Cloth-
 See Paper and Cloth.

Sash Cord-See Cord, Sash.**Sash Locks-See Locks, Sash.****Sash Weights-**

See Weights, Sash.

Sausage Stuffers or Fillers-See Stuffers or Fillers, Sausage.**Saws-**

Note.-Extra 5% often given.

Atkins' Circular..... 50%
 Atkins' Cross Cuts, new list..... 40%
 Atkins' Mulay, Mill and Drag..... 50%
 Atkins' One-Man Saw..... 40%
 Atkins' Wood Saws..... 40%
 Diston's Circular..... 45%
 Diston's Cross Cut, list Jan. 1, 1893..... 25%
 C. E. Jennings & Co.'s..... 25%
 Peace Circular and Mill..... 45%
 Peace Cross Cuts, list Jan. 1, 1893..... 45%
 Peace Hand, Panel and Rip..... 25%
 Diston's Circular and Mill..... 45%
 Richardson's X Cuts, list Jan. 1, 1893..... 25%
 Richardson's Hand, &c..... 25%
 Simonds' Circular Saws..... 45%
 Simonds' Crescent Ground Cross Cut Saws..... 30%
 Simonds' Gang, Mill, Mulay and Drag..... 45%
 Wheeler, Madden & Clemson Mfg. Co. Cross Cuts, list Jan. 1, 1893..... 45%
 Hand, Panel and Rip..... 30%
 Cross Cuts, list Jan. 1, 1893..... 45%
 Hand, Panel and Rip..... 25%

Hack Saws-

Eureka and Crescent..... 25%
 Griffin's, complete..... 40%
 Griffin's Hack Saw Blades..... 40%
 Star Hack Saws and Blades..... 25%

Scroll-

Barnes' Builders' and Cab Makers'..... 15%
 Barnes' Scroll Saw Blades..... 25%
 Lester, complete, \$10.00..... 25%
 Rogers, complete, \$4.00..... 25%

Saw Frames-

See Frames, Saw.

Saw Sets-See Sets, Saw.**Saw Tools-See Tools, Saw.****Scales-**

Chatillon's Eureka..... 25%
 Chatillon's Favorite..... 40%
 Chatillon's Grocers' Trip Scales..... 50%
 Family, Turnbills..... 30%
 Hatch, Counter, No. 171, good quality..... * doz \$18.00
 Hatch, Tea, No. 161..... * doz \$6.50
 Riehle Bros' Platform..... 40%
 Union Platform, Plain..... \$2.40
 Union Platform, Striped..... \$2.40

Scale Beams-

See Beams, Scale.

Scissors, Fluting..... 45%**Scrapers-**

Adjustable Box Scraper (S. R. & L. Co.)..... \$6.00
 Box, 1 Handle..... * doz \$2.00
 Box, 2 Handle..... * doz \$3.00
 Defence Box and Ship..... 20%
 Foot..... 50%
 Ship, R. I. Tool Co..... 10%

Screen Window and Door

Frames-See Frames

Screw Drivers-

See Drivers, Screws

Screws-**Bench and Hand-**

Bench, Iron..... 55%
 Bench, Wood, Beech..... 25%
 Bench, Wood, Hickory..... 20%
 Hand, Wood..... 25%
 Hand, Grand Rapids, list..... 35%

Coach, Lag and Hand-Rail-

Lag, Blunt Point, list Jan. 1, 1890..... 80%
 Coach and Lag, Gimlet Point, list Jan. 1, 1890..... 80%
 Hand Rail, Am. Screw Co..... 75%
 Hand Rail, H. & B. Mfg. Co..... 70%
 Hand Rail, Sargent's..... 70%

Jack Screws-

Jack Screws, Millers Falls list..... 50%
 Jack Screws, P. S. & W..... 35%
 Jack Screws, Sargent..... 70%
 Jack Screws, Stearns..... 40%

Cork-

Detroit Cork Screw Co..... 33%
 Humason & Beckley Mfg. Co..... 40%
 Williamson's..... 33%
 Williamson's Forged Worm, Applewood Handle, * doz., \$5.00; Rosewood, \$5.50..... 40%

Machine-

Flat Head Iron..... 65%
 Round Head Iron..... 60%

Wood-

List January 1, 1891.
 Flat Head Iron..... 70%
 Round Head Iron..... 65%
 Flat Head Brass..... 70%
 Round Head Brass..... 65%
 Flat Head Bronze..... 65%
 Round Head, Bronze..... 65%
 Rogers' Drive Screws..... 82%

Scroll Saws-See Saws, Scroll.**Scythes-**

Grain..... 40%
 Grass..... 40%

Scythe Snaths-

See Snaths, Scythe.

Sets-

Alken's Sets, A. W. and Tools, No. 20, * doz \$10.00..... 60%
 Common Brad Sets, No. 42, \$10.50; No. 43, \$12.50..... 70%
 Fray's Adj. Tool Hds., Nos. 1, \$12; 2, \$18; 3, \$12; 4, \$8..... 45%
 Henry's Combination Haft..... * doz \$4.50
 Millers Falls Adj. Tool Hds., No. 1, \$12; No. 4, \$12; No. 5, \$18..... 25%
 Stanley's Excelsior, No. 1, \$7.50; No. 2, \$4.00; No. 3, \$5.50..... 30%

Nail-

Round..... * gr. \$3.25
 Square..... * gr. \$4.00
 Buck Nail..... * doz \$2.75
 Cannon's Diamond Point..... * gr. \$12, 20%

Rivet-

Regular list..... 70%

Saw-

Atkin's Criterion..... * doz No. 1, \$8.00
 Atkin's Genuine..... \$13.00
 Atkin's Imitation..... * doz \$3.00
 Atkin's Lever..... * doz No. 1, \$8.00
 Avery's Saw Set and Punch..... 50%
 Bemis & Call Co.'s Cross Cut..... 30%
 Bemis & Call Co.'s Plate..... 20%
 Bemis & Call Spring Hammer..... 30%
 Crescent Lever..... * doz \$2.00
 Crescent..... * doz \$2.00
 Croissant (Keller), No. 1, \$15.00; No. 2, \$24.00..... 40%
 Diston's Star..... 25%
 Hammer, Bemis & Call Co.'s new Pat. 45%
 Hammer, Hotchkiss..... \$5.50
 Kohler's Giant Royal..... * doz \$12.00
 Kohler's Royal..... * doz \$7.00
 Leach's No. 0, \$8.00; No. 1, \$15..... 15%
 Leopold..... 40%
 Lloyd's Acme..... * doz \$15, 40%
 Morrill's No. 1, \$15.00..... 40%
 No. 3 and 4 Cross Cut, \$23.00..... 40%
 No. 5, Mill, \$31.00..... 40%
 No. 10, \$15.00..... 40%
 No. 11, \$16.00..... 40%
 Nash's..... 20%
 Stillman's Genuine..... * doz \$5.00
 Stillman's Pattern, Hand, * doz \$3.25
 Cross Cut, \$6.50..... 55%
 Taintor Positive..... * doz \$18, 50%

Sharpeners, Knife-

Applewood Handles..... * doz \$8.00, 5 1/2%
 Rosewood or Cocobola..... * doz \$9.00, 5 1/2%

Shaves, Spoke-

Iron..... 45%
 Wood..... 30%
 Bailey's (Stanley R. & L. Co.)..... 60%
 Cincinnati..... 25%
 Goodell's * doz \$9.00..... 25%
 Stearns..... 30%

Shears-

Acme Cast Shears..... 10%
 American (Cast) Iron..... 75%
 Barnard's Lamp Trimmers..... * doz \$3.75
 Cast Steel Trimmers..... 80%
 First quality..... 80%
 Second quality..... 80%
 Campbell Cutlery Co., Jap'd..... 75%
 Nickel Plated..... 65%
 Claus brand, Japanned..... 70%
 Claus brand, Nickelled, same list..... 60%
 Clipper..... 10%
 Davenport Cutlery Co..... 60%
 Diamond Cast Shears..... 10%
 Electric Cutlery Co..... Net
 Galvanic 3/4 to 9 in. * doz \$1.00 * inch
 Hatch Cutlery Co. Solid Steel Forged..... 60%
 Heinichs, list, &c. 1881..... 30%
 Heinichs' Tailor's Shears..... 35%
 Howe Bros. & Hulbert, Solid Forged Steel..... 40%
 Seymour's, list Dec. 1881..... 60%
 Victor Cast Shears..... 75%

Tinners' Snips-

Cast Handles, Laid with Steel..... 40%
 Niagara Snips and Shears..... 20%
 Wrt. Handles, Steel Blades..... 20%

Pruning Shears and Hook

Disston's Combined Pruning Hook and Saw..... * doz \$18.00, 30%
 Disston's Pruning Hook, * doz \$12.00, 20%
 Dunlap's Saw and Chisel, * doz \$8.50, 30%
 Henry's Pruning Shears, * doz \$4.25, 20%
 E. S. Lee & Co.'s Pruning Tools..... 60%
 Levin Pruner No. 1, \$15.00 * doz..... 40%
 Levin Pruner No. 2, \$21.00 * doz..... 40%
 J. Mallinson & Co., No. 1, \$5.25; No. 2, \$7.25
 Pruning Shears, Henry's Pat. * doz..... 35%
 P. S. & W. Co..... \$3.50
 Wheeler, M. & C. Co., Combination..... 60%
 Wheeler, M. & C. Co., Combination..... * doz \$12.00

Tinners' &c.-

Shears and Snips (P. S. & W.)..... 20%
 Snips, J. Mallinson & Co..... 35%

Sheaves-**Sliding Door-**

Corbin's list..... 60%
 M. W. Co., list July, 1888..... 50%
 Moore's Anti-Friction..... 50%
 Patent Roller..... 60%
 Patent Roller, Hatfield's..... 75%
 R. & E. list Dec. 18, 1888..... 55%
 Russell's Anti-Friction, list Dec. 1885..... 60%

Sliding Shutter-

Reading list..... 60%
 R. & E. list Dec. 18, 1885..... 60%
 Sargent's list..... 70%

Shells-

Brass Shot Shells, Club, Rival, Climax..... 65%
 Brass Shot Shells, 1st quality..... 60%
 First quality 4, 8, 10 and 12 gauge..... 25%
 First quality Rival, Club and Climax brands, 14, 16 and 20 gauge (\$7.50 list)..... 20%
 Prize..... 40%
 Seibold's Comp. Shot Shells..... 15%
 Smokeless brand, 12, 10, 16 gauge..... 35%
 Star, Club, Rival and Climax Brands..... 35%
 Trap brand, 12 and 10 gauge..... 35%

Shells, Loaded.

Standard list, July 19, 1890..... 40%
 40 & 10 & 10 & 10 & 10 & 10 * 7 1/2 cash, 10 days.

Ship Tools-

L. & J. White..... 20%

Shoes, Horse, Mule, &c.**Horse-**

Burden's, Perkins', Phoenix, Standard, Diamond State, Bryden's Rose and Crescent..... \$3.50
 Bryden's Frog Pressure, at factory \$5.00

Mule-

Add \$1 per keg to above prices.

Ox Wrought-

Ton lots..... * m 8 1/2
 10 m lots..... * m 8 1/2
 500 m lots..... * m 10 1/2

Shot-

Drop, up to B. 25-b bag..... \$1.15
 Drop, up to B. 5-b bag..... 35%
 Drop, B and larger, 25-b bag..... 1.40
 Drop, B and larger, 5-b bag..... .40
 Bag and Chilled, 25-b bag..... 1.40
 Bag and Chilled, 5-b bag..... 2.00
 Dust Shot, 25-b bag..... 2.00
 Dust Shot 5-b bag..... .45

Shovels and Spades-

Ames Shovels, Spades, &c., list Nov. 1, 1885..... See Trade Report.
 Note.-Jobbers frequently give 6% extra on above.
 Griffith's Black Iron..... 50%
 Griffith's C. S. R. R. Tools..... 60%
 Griffith's Solid C. S. R. R. Tools..... 25%
 Hubbard & Co., Antrim list..... 25%
 Hussey, Bins & Co..... 15%
 H. M. Myers Co..... 30%
 Lehigh Mfg. Co..... 50%
 St. Louis Shovel Co..... 20%
 Payne Petrebone & Co..... 40%
 Remington's (Lowman's Pat.)..... 40%
 Rowland's Black Iron..... 60%
 Rowland's Steel..... 60%
 Terra Haute Shovel & Tool Co..... 25%

Shovels and Tongs-

Brass Head..... 60%
 Iron Head..... 60%

Sieves and Sifters-

A. & W. Sifters..... * gr \$15.00
 Buffalo Metallic, S. S. & Co..... 50%
 Electric Light..... * doz \$1.50; * gr \$1.50
 Hunter's Genuine..... * doz \$1.75; * gr \$1.50
 Hunter's Imitation..... 60%
 Mann's Tin Rim..... * doz \$1.75; * gr \$1.50
 Shaker (Barber's Pat.) Flour Sifters..... * gr \$21.00

Sieves, Wooden Rim-

Mesh 18, Nested, * doz..... \$0.80
 Mesh 20, Nested, * doz..... .95
 Mesh 24, Nested, * doz..... 1.15

Sinks, Wrought Steel-

Columbus, Galvanized and Enamelled..... 50%
 Columbus, Painted or Unpainted..... 30%
 New Era, Painted..... 40%
 New Era Galvanized and Enamelled..... 40%

Skins, Thimble-

Western list..... 75%
 Coldbrookdale Iron Co..... 60%
 Columbus Wrt. Steel..... Special net prices
 Seneca Falls Pattern..... 75%
 Utica P. S. T. Skins..... 60%
 Utica Turned and Fitted..... 35%

Slates-</

Snaps, Harness, &c.

Anchor (T. & S. Mfg. Co.)	65¢
Fitch's (Bristol)	50¢10¢
Hotchkiss	10¢
Andrews	50¢
Gargant's Patent Guarded	70¢10¢10¢
German, new list	40¢10¢
Covert	50¢10¢5¢2¢
Covert, New Patent	50¢10¢5¢2¢
Covert, New R. E.	60¢10¢5¢2¢
Covert Spring	60¢10¢10¢
Covert's Saddlery Works' Triumph	33¢
John Protz Snaps	75¢75¢5¢
Kelley & Woolworth's Steel Harness	50¢10¢80¢

Snaths

50¢2¢50¢5¢2¢

Soldering Irons

See <i>Polish, Soldering</i>

Spittoons, Cuspidors, &c.

Standard Fiberglass

Cuspidors, 8 1/2 inch, 7 doz, No. 6, 8; No. 5, 2, 30.

Spittoons, Daisy, 8-inch, No. 1, 4; 10 and 11 inch, 30.

Spoke Shaves

See <i>Shames, Spoke</i>

Spoke Trimmers

See <i>Trimmers, Spoke</i>

Spoons and Forks

Tinned Iron

Basting, Cen. Stamp, Co's list

Solid Table and Tea Cen. Stamp, Co's

list

Buffalo, B. S. & Co.

Silver Plated

4 months or 5¢ cash 30 days:

Meriden Brit. Co., Rogers

Rogers & Hamilton

C. Rogers & Bros.

Rogers & Bros.

Read & Barton

Wm. Rogers Mfg. Co.

Simpson, Hall, Miller & Co.

Holmes & Edwards Silver Co.

L. Boardman & Son

Miscellaneous

Holmes & Edwards Silver Co.

No. 37 Mexican Silver

No. 30 Silver Metal

No. 24 German Silver

No. 50 Nickel Silver

No. 49 Nickel Silver

Wm. Rogers Mfg. Co.

Rogers' Silver Metal

18% Rogers' German Silver

22% Rogers' Nickel Silver

Rogers & Hamilton

Steel Goods

Cimeter, Flatware

Cimeter, Steel Goods

Crown Hamilton, Flatware and Cutlery

German Silver

Nickel Silver

Britannia

Boardman's Nickel Silver

1891

Boardman's Britannia spoons, case lots
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Springs

Torrey's Rod, 39 in.

Warner's No. 1, 39 in.

Gem (Coll.) list April 19, 1886

Star (Coll.) list April 19, 1886

Victor (Coll.)

Champion (Coll.)

Cowell's, No. 1, 39 in.

15.00

Rubber, complete, 39 in.

Ercules

Phoenix

Carriage, Wagon, &c.

Elphette, Concord, Platform and Half

Roll

60¢10¢80¢10¢10¢10¢ or net prices

Old's Bolster Springs

Squares

Steel and Iron

Nickel-Plated

Try Square and T Bevels

Diston's Try Square and T Bevels

Winterbottom's Try and Miter

Starrett's Micrometer Caliper Squares

Avery's Flush Bevel Squares

Avery's Bevel Protractor

Squeezers

Blair's

Blair's "Climax"

Lemon

Porcelain Lined, No. 1

Wood, No. 2

Wood, Common

Dunlap's Improved

Sammis, No. 1, 50¢; No. 2, 30¢; 12

18¢ doz

Jennings' Star

The Boss

Dean's, No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
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Little Giant

King

Hotchkiss Straight Flash

Silver & Co. Glass

Standard Fiber Ware

See <i>Ware, Standard Fiber</i>

Staples

Barbed Blind, 1/2 in. and larger

Barbed Blind, 1/2 in. and larger

Fence Staples, Galvanized

Fence Staples, Plain

Grand Crossing Tack Co's Nat.

Staples Butchers

Nichols Bros.

Steelyards

Stocks and Dies

Blacksmith's

Waterford's Goods

Butterfield's Goods

Lightning Screw Plate

Reece's New Screw Plates

Reversible Ratchet

Gardner

Green River

Staples

Morrill's

Hotchkiss

Watson's No. 1, 10¢; No. 2, 25¢10¢10¢

McGill's

Cincinnati

Terrill's Nos. 1 and 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
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30.00

Stones, Grind-See Grindstones.

Scythe Stones

Pike Mfg. Co., list April, 1892

Cleveland Stone Co., list Nov. 1892

Oil Stones, &c.

Pike Mfg. Co.

Indostan No. 1, 1/2 doz

Sand Stone

Turkey Oil Stone, 4 to 8

In

Turkey Slips

Lily White Washita

Rosy Red Washita

Washita Stone, Extra

Washita Stone, No. 1

Washita Stone, No. 2

Lily White Slips

Rosy Red Slips

Washita Slips, Extra

Washita Slips, No. 1

Arkansas Stone, No. 1, 3 to 5 1/2

Arkansas Stone, No. 1 1/2 to 8 in.

Lake Superior

Lake Superior Polish

Stove Polish

See <i>Polish, Stove</i>

Stretchers Carpet

Cast Iron, Polished

Cast Iron, Steel Points

Socket

Bullard's

Strops, Razor

Genuine Emerson

Initiation

Turkey's

Badger's Belt and Com.

Lamont Combination

Jordan's Pat. Padded, list Nov. 1, 89

Electric Cutlery Co.

Campbell Cutlery Co.

Stuffer, Sausage

Miles' Challenge

Perry

Drum Cut No. 4, each \$50.00

Enterprise Mfg. Co., list Jan 17, '93

Silver's

Sweepers, Carpet and Lawn

Carpet

Bissell No. 6

Bissell No. 8

Bissell, Grand

Standard

Domestic

Domestic, No. 2

Grand Rapids

Crown Jewel, No. 1, 18 in.

Crown Jewel, No. 2, 19 in.

Magie

Improved Parlor Queen

Nickel

Jannaped

Excelsior

Garland

Parlor Queen

Housewife's Delight

Ladies' Friend

Ladies' Friend No. 2

Advance

Our Leader

Triumph

Supreme

Easy, Jap'd, 2 doz \$22.00; Nickel, 24 doz
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Gift Edge

Aeme

Imperial

Grand Republic

Jap'd, 2 doz \$30.00; Nickel, 24 doz

Banner

Jap'd, 2 doz \$22.00; Nickel, 24 doz

The Star

Reliable

Rapid Jap'd, 2 doz \$22.00; Nickel, 24 doz
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Our Own

Model

Goshen

Goshen

Rapids, Mich., make the following re-

bates:

Whips

American Whip Co.	Length.	4 1/2	5	5 1/2	6	6 1/2	7	7 1/2	8 ft.
X. L. Whalebone Driving	18.00	20.00	22.00	24.00	27.00	30.00	33.00	36.00	
Eureka, Two-thirds Whalebone			15.00	16.50	18.00	20.00			
Bull Bone, Half-length Whalebone				11.00	12.00	13.00	15.00		
American Standard	8.00	8.50	9.00	10.00	12.00	13.50	15.00	16.50	
True Grip, Raw Hide Center	8.00	8.00	8.50	7.00	7.50	8.00			
New Name, Stocked Java, Black and Wine Colors				6.00					
Americus, 93 Pen Whip				6.00					
Gents' Light Driving No. 111				6.00					
Gents' Light Driving No. 108				5.00					
Hand-made Stocked Java No. 103				3.75	4.00				
A large variety of cheaper grades							50¢	\$3.00	
Team Whips							\$2.00	\$7.50	
Toy Whips								\$2.50	\$12.00
Hardware Assortment, 10/American, 75 Whips for \$50.00									

Wire and Wire Goods—**Iron—**

Market,	
Br. & Ann., Nos. 0 to 18.	Extra 5¢@10¢
75¢@10¢75¢@10¢5¢	often given
Cop'd, Nos. 0 to 18.75¢5¢	and low net
Galv'd, Nos. 0 to 18.	prices often
70¢5¢70¢@10¢	made on
Tin'd, Tin'd list, Nos. 0 to 18.	large lots.

Stone,	
Br. and Ann'd,	
Nos. 16 to 18.	80%
Nos. 19 to 28.	80% Extra 10¢
Nos. 27 to 36.	82% often given
Tinned Broon Wire, 13 to 21, # D.	4¢
Galvanized Fence	75¢@10¢
Brass, list Jan. 18, 1884.	40¢5¢
Copper, list Jan. 18, 1884.	40¢5¢
Annealed Wire on Spools.	60%
Mallin's Annealed and Tin'd on Spools.	60¢5¢
Mallin's Brass and Cop. on Spools.	50¢5¢
Ossawan Mills, Ann'd and Tinned on Spools.	60¢@10¢

Ossawan Mills, Brass and Copper on Spools. 50¢@10¢
 Tate's Spool, Ann'd & Annealed. 60¢5¢
 Tate's Spooled Cop. and Brass. 50¢
 Cast Steel Wire. 50¢
 Stubs' Steel Wire. \$6.00 to 2, 30¢
 Steel Music Wire, 12 to 30, imported. 60¢@70¢ # D
 Wire Clothes Line, see Lines.
 Wire Picture Cord, see Cord.

Bright Wire Goods—
 Standard list. 55¢@10¢@90¢
Wire Cloth and Netting—
 Painted Screen Cloth 100 ft. \$1.45¢\$1.50
 Galvanized Wire Netting. 80¢@80¢@10¢

Wire Barb—
 See Trade Report.
Wire Rope—See Rops. Wire.
Wrenches—

American Adjustable	40%
Baxter's Adjustable "S"	40¢@10¢50¢
Baxter's Diagonal	60%
Coe's Genuine	50¢@10¢
Coe's "Mechanics"	50¢@10¢50¢
Girard Standard	55¢@10¢70¢
Lamson & Sessions' Engineers'	60¢@10¢
Lamson & Sessions' Standard	70¢@10¢
P. S. & W. Agricultural	
Girard Agricultural	
Lamson & Sessions' Agric'l.	75¢@10¢80¢
W. & B. Diamond	

Bemis & Call's:	
Pat. Combination Bright	40¢5¢
Pat. Combination Black	40¢@10¢
Merrick's Pattern	45¢
Briggs' Pattern	30¢@10¢
Cylinder or Gas Pipe	45¢5¢
No. 3 Pipe	55¢
Alken's Pocket (Bright)	\$6.00, 50¢@10¢
The Favorite Pocket	\$ doz., \$4.00, 40¢
Webster's Pat. Combination	25¢
Boardman's	30¢
Always Ready	25¢5¢
Alligator	50¢
Donohue's Engineer	20¢@10¢
Ragle	50¢@10¢
Acme, Bright	50¢2¢
Acme, Nickel	40¢2¢
Hercules	70¢@70¢5¢
Walker's	55¢5¢
Diamond Steel	55¢5¢
Cincinnati Brace Wrenches	25¢@10¢
Taft's Vise Wrench	55¢@10¢5¢

Wringers, Clothes—

Am. Wringer Co.'s list, July 1, 1882.	2% cash
Colby Wringer Co.'s list, Sept. 1, 1882.	2% cash
Lovell Mfg. Co., list July 1, 1892.	2% cash
Peelless Mfg. Co., list Feb. 1, 1892.	2% cash
National Wringer & Mfg. Co., list June 1, 1892.	2% cash

Wrought Goods—

Staples, Hooks, &c., list, March 17, 1892.	85¢@10¢55¢15¢
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Paints, Oils and Colors.—Wholesale Prices.**Animal and Vegetable**

Linseed, City, raw, per gal.	47
Linseed, City, boiled	50
Linseed, Western, raw	47
Lard, City, Extra Winter	70
Lard, City, Prime	70
Lard, City, Extra No. 1	50
Lard, City, No. 1	45
Lard, Western, prime	70
Cotton-seed, Crude, prime	25
Cotton-seed, Crude, off grades	23
Cotton-seed, Summer Yellow, prime	36
Cotton-seed, Summer Yellow, off grades	34
Sperm, Crude	65
Sperm, Natural Spring	66
Sperm, Bleached Spring	71
Sperm, Natural Winter	71
Sperm, Bleached Winter	76
Whale, Crude	45
Whale, Natural Winter	45
Whale, Bleached Winter	48
Whale, Extra Bleached	50
Sea Elephant, Bleached Winter	32
Menhaden, Crude, Sound	32
Menhaden, Crude, Southern	36
Menhaden, Light Pressed	41
Menhaden, Bleached W'ter	43
Menhaden, Extra Bleached	43
Tallow, City, prime	50
Tallow, Western, prime	48
Cocconut, Ceylon	5¢@6
Cocconut, Cochín	6¢@6 1/2
Cod, Domestic	38
Cod, Foreign	42
Red Elaine	35
Red Saponified	38
Bank	39
Strait	39
Olive, Italian, bbls.	58
Neatsfoot, prime	60
Palm, prime, Lagos	54

Mineral Oils—

Black, 29 gravity, 25 @ 30 cold test.	7 @ 7 1/2
Black, 29 gravity, 15 cold test.	7 1/2 @ 8
Black, 29 gravity, summer.	6 @ 6 1/2
Cylinder light, filtered.	14 @ 16

Cylinder, dark, filtered	10 @ 13
Paraffine, 23 1/2 @ 24 gravity	11 @ 12
Paraffine, 25 gravity	10 @ 11
Paraffine, 28 gravity	7 1/2 @ 8
Paraffine, red	9 1/2 @ 10 1/2

Paints and Colors—

Barytes, Foreign, 10 ton	\$22.00 @ 24.00
Barytes, Amer. floated	29.00 @ 32.00
Barytes, Amer. No. 1	16.00 @ 18.00
Barytes, Amer. No. 2	13.00 @ 15.00
Barytes, Amer. No. 3	11.00 @ 12.00
Blue, Celestial	40 @ 50
Blue, Chinese	25 @ 40
Blue, Prussian	40 @ 50
Blue, Ultramarine	8 @ 25
Brown, Spanish	1 1/2 @ 1
Brown, Vandyke, Amer.	3 @ 3 1/2
Brown, Vandyke, English	6 @ 8
Carmine, No. 40, in bulk	2.75 @ 3
Carmine, No. 40, in boxes or barrels	2.85 @ 3
Carmine, No. 40, in ounce bottles	3.75 @ 4
Chalk, in bulk	1.75 @ 2.00
Chalk, in bbls.	33 @ 40
China Clay, English	10 @ 13
Cobalt Oxide, prep'd	9.00 @ 11.00
Cobalt Oxide, black	1.90 @ 2.00
Cobalt Oxide, black, lots 100 lb.	1.96 @ 2.00
Green, Paris, in bulk	10 @ 10 1/2
Green, Paris, 170 @ 175 lb	10 1/2 @ 11
Green, Paris, small pack	12 @ 17
Green, Chrome, ordinary	6 @ 12
Green, Chrome, pure	22 @ 25
Lead, Eng. E. E. white	7 @ 8
Lead, Ann. White, dry or in oil	6 @ 6 1/2
Kegs, lots less than 500 lb.	6 @ 6 1/2
Kegs, lots 500 lb to 5 tons	6 @ 6
Kegs, lots 5 tons to 12 tons	5 1/2 @ 5 1/2
Kegs, lots 12 tons and over	5 1/2 @ 5 1/2
Lead, White, in oil, 25 lb tin pails, add to keg price	6 @ 6 1/2
Lead, White, in oil, 12 1/2 lb tin pails, add to keg price	6 @ 6 1/2
Lead, White, in oil, 1 to 5 lb assorted tins, add to keg price	6 @ 6 1/2
Lead, Red, bbls. and 1/2 bbls.	5 1/2 @ 6 1/2
Lead, Red, kegs	5 1/2 @ 6 1/2
Litharge, kegs	5 1/2 @ 6 1/2
Litharge, bbls. and 1/2 bbls.	5 1/2 @ 6 1/2

TERMS, &c.—Lead and Litharge.—On lots of 500 lb or over, 60 days' time or 2 1/2 % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle	1.35 @ 1 1/2
Ocher, French Washed	1 1/2 @ 1 1/2
Ocher, German Washed	1 1/2 @ 1 1/2
Ocher, American	1 1/2 @ 1 1/2
Orange Mineral, English	8 1/2 @ 9
Orange Mineral, French	10 @ 10 1/2
Orange Mineral, German	8 1/2 @ 9
Orange Mineral, American	8 1/2 @ 8 1/2
Paris White, English Cliff stone	1.00 @ 1.15
Paris White, American	65 @ 75
Red, Indian, English	5 1/2 @ 7
Red, Indian, American	2 @ 6 1/2
Red, Turkey	9 @ 14
Red, Tuscan	9 @ 11
Red, Venetian, American	130 lb. 1.00 @ 1.10
Red, Venetian, English	1.20 @ 1.35
Sienna, Italian, Burnt and Powd.	4 @ 5
Sienna, Ital., Burnt Lumps	1 1/2 @ 3 1/2
Sienna, Ital., Raw, Powd.	4 1/2 @ 5 1/2
Sienna, Ital., Raw, Lumps	1 1/2 @ 3 1/2
Sienna, American, Raw	1 1/2 @ 1 1/2
Sienna, American, Burnt and Powdered	1 1/2 @ 1 1/2
Talc, French	1 1/2 @ 1 1/2
Talc, American	1 1/2 @ 1 1/2
Terra Alba, French	95 @ 125
Terra Alba, English	70 @ 80
Terra Alba, American No. 1	65 @ 75
Terra Alba, American No. 2	45 @ 60
Umber, Turkey, Burnt and Powdered	3 1/2 @ 4
Umber, Turkey, Raw and Powdered	2 1/2 @ 3
Umber, Turkey, R'w Lumps	3 1/2 @ 4
Umber, Turkey, Bnt. Amer.	1 1/2 @ 1 1/2
Umber, Turkey, R'w Amer.	1 1/2 @ 1 1/2
Yellow, Chrome	10 @ 25
Vermilion, American Lead	11 @ 12
Vermilion, Quicksilver bags	43 @ 44
Vermilion, Quicksilver sm't pkgs.	52 @ 52
Vermilion, English Import	80 @ 85
Vermilion, Imitation, Eng.	8 @ 30
Vermilion, Trieste	80 @ 92 1/2
Vermilion, Chinese	92 1/2 @ 92 1/2
Whiting Common, 100 lb	37 1/2 @ 42 1/2
Whiting Gilders'	45 @ 55

Zinc, American, dry	3 1/2 @ 4 1/2
Zinc, French, Red Seal	7 1/2 @ 7 1/2
Zinc, French, Green Seal	9 @ 9
Zinc, French, V. M. X.	7 @ 7
Zinc, Antwerp, Red Seal	7 1/2 @ 7 1/2
Zinc, Antwerp, Green Seal	7 1/2 @ 7 1/2
Zinc, German, L. Z. O.	6 1/2 @ 7 1/2
Zinc, V. M. in Poppy Oil, G. Seal, lots of 1 ton and over	10 1/2 @ 11 1/2
Zinc, V. M. in Poppy Oil, lots less than one ton	11 @ 11 1/2
Zinc, V. M. in Poppy Oil, Red Seal	10 @ 10 1/2
Zinc, V. M. in Poppy Oil, lots of 1 ton and over	10 @ 10 1/2
Zinc, V. M. in Poppy Oil, lots less than 1 ton	10 1/2 @ 10 1/2
Discounts—French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1 1/2 @ 25 bbls, 2 1/2 @ 50 bbls, 4 1/2 @ No discount allowed on less than bbl. lots.	

Colors in Oil—

Black, Drop, Frankfurt	25 @ 30
Black, Drop, English	12 @ 15
Black, Drop, Domestic	7 @ 10
Black, Lamplack, Best	20 @ 35
Black, Lamplack, Common	8 @ 13
Black, Ivory	8 @ 15
Blue, Chinese	35 @ 40
Blue, Prussian	20 @ 45
Blue, Ultramarine	12 @ 18
Brown, Vandyke	7 @ 12
Green, Chrome	8 @ 13
Green, Paris	10 @ 18 1/2
Sienna, Raw	7 @ 14
Sienna, Burnt	7 @ 14
Umber, Raw	7 @ 10
Umber, Burnt	7 @ 10

Putty—

In barrels and 1/2 bbls.	.013¢ @ .013¢
In tubs	.013¢ @ .013¢
In tin cans	.013¢ @ .013¢
In bladders	.013¢ @ .013¢

Spirits Turpentine—

In regular bbls.	30 1/2 @ 30 1/2
In machine bbls.	31 @ 31

Glue—

Low Grade	8 @ 10
Cabinet	12 @ 14
Medium White	13 @ 15
Extra White	17 @ 20
French	10 @ 22
English	10 @ 16
Irish	12 @ 12

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Stove Plate Scrap	gross ton	2.50
Burn Iron	gross ton	8.00

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